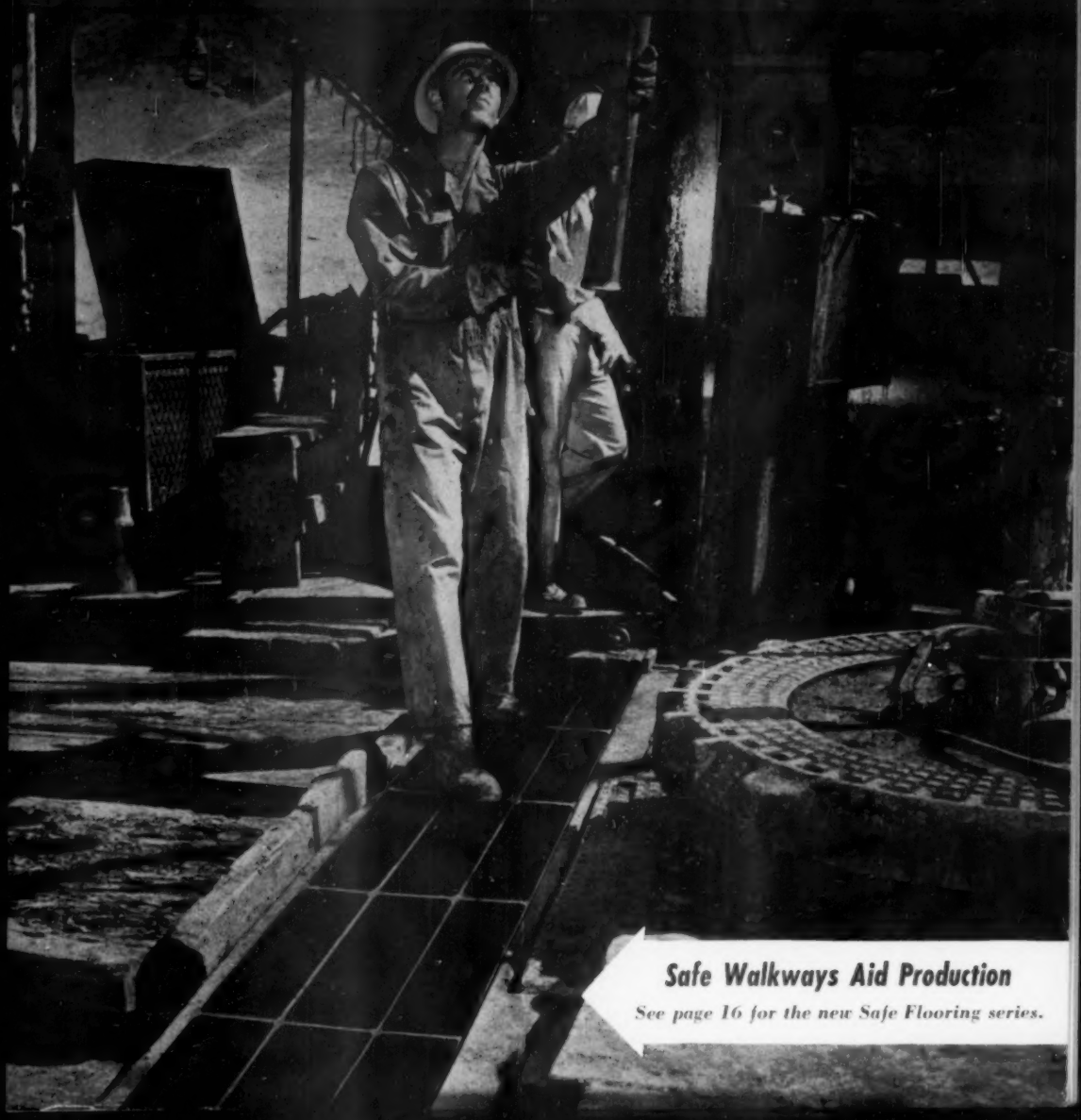
SAFETY ENGINEERING



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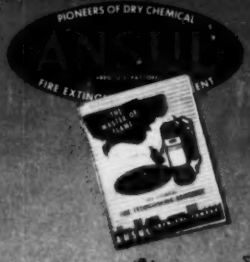

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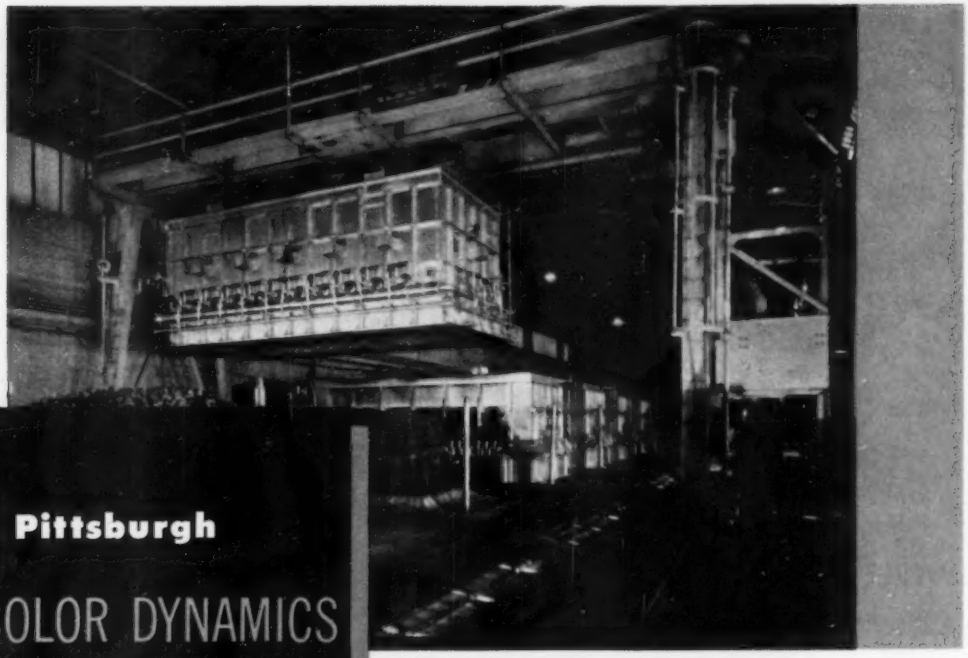

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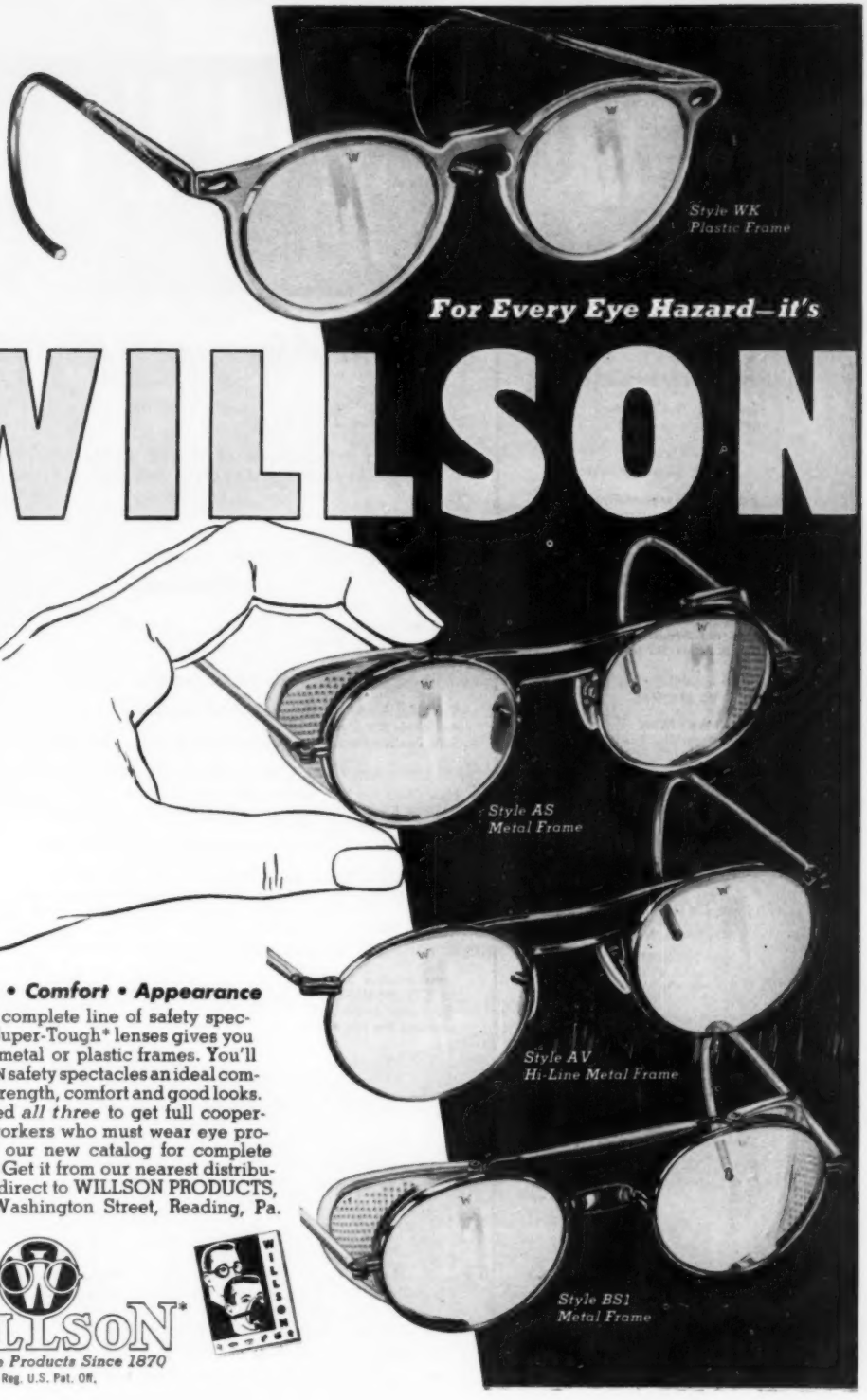

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SAFETY ENGINEERING

The Magazine of Safety

Reg. U. S. Pat. Off.

A MONTHLY PUBLICATION DEDICATED TO ACCIDENT PREVENTION, HEALTH CONSERVATION AND FIRE CONTROL.
EST. 1901

VOLUME 99, NO. 5 MAY, 1950

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It's Safe to Say

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★ CRUISING SPEED

NO ONE can take issue with Britain and British firms in their desire to build up dollar reserves without which their austerity would be more severe and more prolonged. Without entering into the realm of economics, we can sympathize with the plight of that country, even though part is of its own doing.

That sympathy brings greater understanding to the display of British-made passenger cars and trucks that attracted large crowds to New York's Grand Central Palace last month at which time the newest models of Britain's motor vehicle makers occupied the spotlight.

It would seem, however, that British car manufacturers do not have that degree of safety consciousness fortunately demonstrated by their "opposite numbers" here in this country. One English manufacturer, for example, has based his entire sales appeal upon the fact that his car can exceed a speed of 90 miles an hour and that the car in question can "cruise along quietly at 80 miles an hour."

We have seen to our sorrow that any such speeds are an open invitation to disaster. Granting the utter mechanical perfection of the vehicle and construction offering the ultimate in safeguards, it cannot be gainsaid that there is a limit to human reactions. At a cruising speed of 80 miles an hour, too much risk is involved by the distance needed to bring the car to an abrupt stop. It is within that distance that tragedy can occur.

Advertising copy slanted toward speed capacity fortunately is a thing of the past, generally, in this country; and the American car manufacturers are to be congratulated for playing down such factors. Instead, we find sales talks centered around passenger protection in an effort to discourage pushing accelerators to the absolute limit.

Perfect control of one's car at 80 or 90 miles an hour is virtually impossible, if we are to take seriously the results of reaction-time tests.

Just as our liquor manufacturers have seen the wisdom of stressing moderation, so has the American motor industry concerned itself with measures designed to keep from killing off its own market.

Britain, it appears, can take a primary safety lesson from one of its own former colonies. In the language of a popular song, when it comes to 90 miles an hour in an automobile, "Who Needs It?"

★ MIDWEST SAFETY SHOW SHERMAN HOTEL, CHICAGO

BY THE time this appears in print the annual Midwest Safety Congress will be in session at Chicago's Hotel Sherman. Sponsored by the Greater Chicago Safety Council, an unusual program of merit and much interest has been prepared and readers in that area are advised to plan to attend at least part of the closing sessions while there is still time.

Other regional safety conventions throughout the country are listed elsewhere in this issue and practically all will have something helpful to say.—H. A.

★ FAIR EXCHANGE

ONE year and a couple of issues ago, a new type of column appeared in this magazine. In each issue since then, SAFETY ENGINEERING has been saluting a "Safety Idea of the Month." The importance of this column is not so much that we have seen fit to give editorial recognition to these safety suggestions, but rather that in this space readers are given a chance to exchange ideas on accident prevention.

Few people, except possibly safety engineers themselves, realize the tremendous amount of effort that goes into a successful safety program. In addition to getting management's approval, convincing supervisors and foremen, holding meetings, inspecting, conferring with the medical department and formulating a safety program, the safety director must also find time for his real job: working out effective ways of preventing specific accidents.

By saluting new safety ideas, SAFETY ENGINEERING strives to help in solving accident problems. By following this column, you may get an idea which will be useful in your own plant. We call your attention, for example, to the safety idea we salute this month on page 44. Here is an ingenious way to get the safety message to the employee, and it is an idea which can be adopted in many industries.

Most hazards are old. Some hazards are new. But if you, or anyone in your plant, has devised a good answer to a particular hazard or has come up with a safety program idea which has sparked flagging interest, send it in to us so that we can pass it along.

Here is where you can swap ideas. Best of all, everybody wins, for the language of accident prevention is universal. Turn in your suggestions. Sound off on your pet scheme. We furnish the soap box.—R. P. E.

Inadequate vision is often unsuspected until discovered and corrected. Be sure that none of your employees is being penalized by trying to work with unsafe inefficient vision like this.

Workers who are fitted with B&L Safety Eyewear, incorporating professionally-prescribed correction lenses for their jobs, have benefit of clear sharp vision like this. Safer . . . more efficient!

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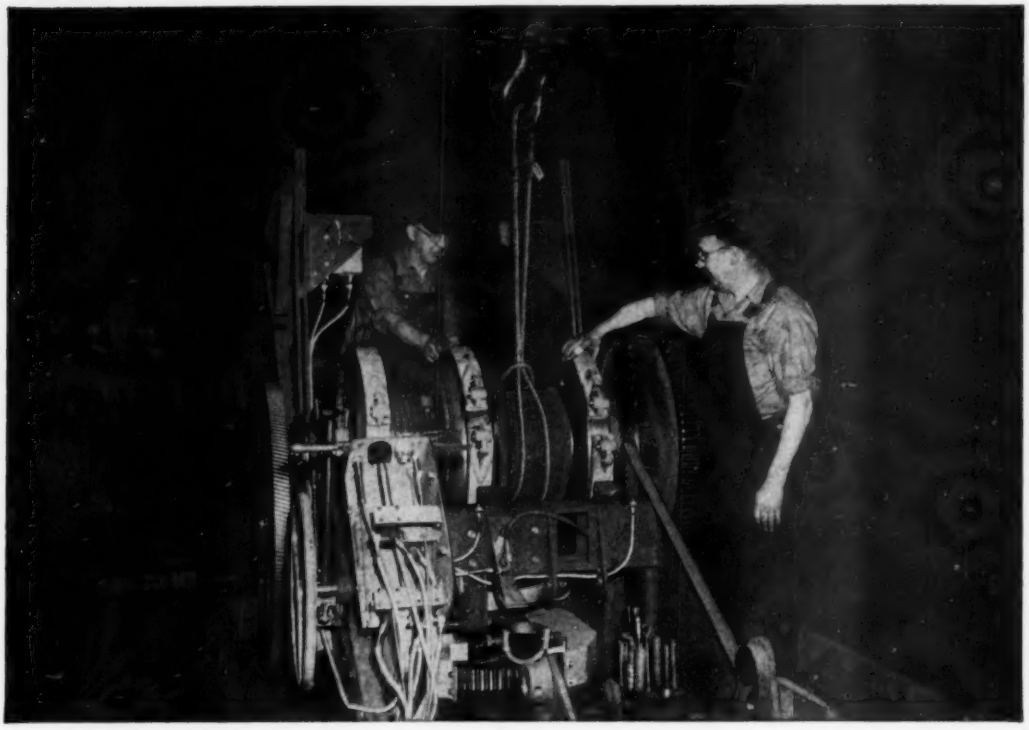

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with flexibility comparable to fiber rope

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The picture above illustrates a case in point. The hitch is a typical fiber rope hitch. But the sling is not fiber rope. It is a Double ACCO-LOC Cable Laid Grommet. It has all the safety, dependability and uniformity of an all-steel, machine laid sling with flexibility comparable to fiber rope. The patented splice develops the full strength of the sling body—plus giving an armored section to use at point of greatest wear.

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SAFETY ENGINEERING
VOL. 99, NO. 5 • MAY, 1950

CROSS SECTION

of the New York Safety Conference

Here is what safety leaders were talking about at the 20th annual Greater New York Safety Convention and Exposition.

A BEWILDERING array of devices to protect man from the law of gravity, his own carelessness, mechanical breakdowns and other hazards of modern living was moved into the Hotel Statler in New York. Window guards of a type never before exhibited, a wire-tape sound box that yells "douse that cigarette!" to workers in danger areas, an "electric eye" foolproof guard for punch presses and an automatic sprinkler that absorbs toxic fumes while quenching flames are among the aids to safety that were set up for the opening of New York's 20th annual Safety Convention and Exposition.

The Convention and Exposition was sponsored by the Greater New York Safety Council and 71 national and local co-operating agencies, including the Army, Navy, Coast Guard, Red Cross, engineering societies, chambers of commerce and seven departments of the New York City government.

The displays were grouped into 114 exposition booths covering 11,250 square feet on the hotel's 18th floor. Edward A. Fullarton, exhibit committee chairman, said that 90 manufacturers of safety equipment, accident reduction services, and associations exhibited this year. Among them were the National Society for the Prevention of Blindness, the State safety groups, manufacturers of fire-fighting equipment and mine safety appliances, and insurance companies which demonstrated tests for safe driving and distributed free materials designed to reduce accidents in the home, in factories and on the road.

Motion pictures were shown—on the safety theme, of course—and visitors to the exposition were invited to take tests which measure their awareness, vision, co-ordination and quickness of reaction to potentially dangerous situations.

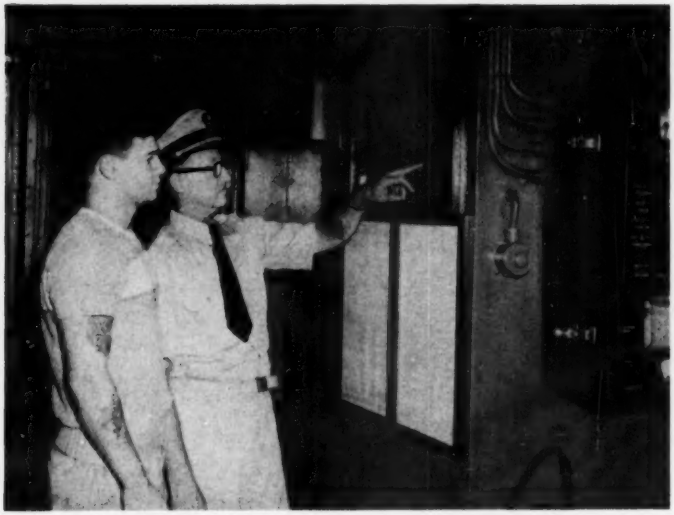
The exhibits ranged from Fire Department equipment, automatic resuscitators and the newest in steeplejack safety aids to non-skid floor and deck surfacings and emergency blinkers that operate if a car breaks down on a dark country road or express highway.

Interlocking barrier gates for power presses and electro-lock shields for grinding wheels were among the industrial safety exhibits. There were also several kinds of protective hand and face creams which reduce the hazards of industrial dermatitis. On another level of accident reduction, some displays featured competitive safety programs with emblems, scoring systems, plaques and other inducements for employees to avoid injury. Safety engineering publications, posters and other aids to accident prevention programs were also featured!

Personal protective equipment, from metal helmets to steel toe-protectors, and including asbestos suits and new-type respirators, were shown in wide variety. Sanitation projects, marine safety appliances, anti-slip bath mats, special safeguards for children and acid-resistant and fire-resistant fabrics were among the other displays. There were also automatic alarms of several kinds, including some that warn of dangerous concentrations of gases.

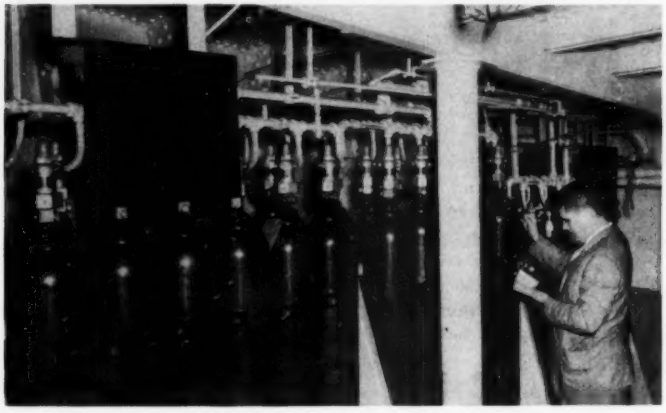
Safety Problems Discussed

Specific directions on accident prevention were traced back to Moses at the opening session. Moses' instructions to *(Continued page 48)*



Carl Kruger, a new deckhand, being indoctrinated in safety by Capt. William Whittaker concerning his duties and station in emergencies. He will receive a booklet of safety rquirements for further study.

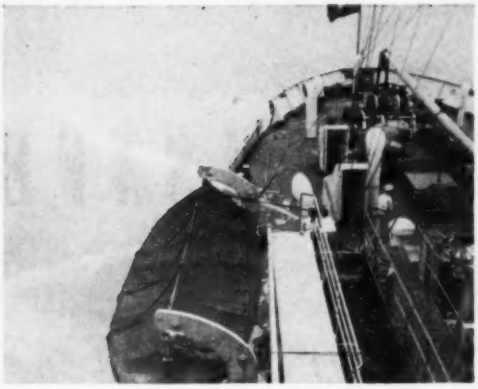
Thomas W. Parker, 1st Assistant Engineer, at the controls of the carbon dioxide fire system.



District Safety Engineer, James L. Cox, reviews inspection record of carbon dioxide storage cylinders.

Charles Brown and Paul Bangle, crew members, take their stations in regular fire drill and operate the hose reel and the directional funnel on the carbon dioxide fire system in the engine room.

Capt. Whittaker leads shore-bound party down the ladder. Steps have abrasive non-skid treads.



Ship has twelve hoselines for fires. Crew members wear cork life preservers which must be donned as soon as the alarm is sounded.

Mate John T. Williams directs launching of lifeboat during abandon ship drill. Frequent drills assure smooth operation in crisis.

Accidents Go Overboard

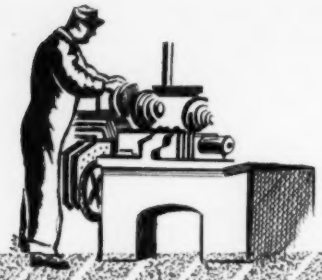
SAFETY ENGINEERING takes you aboard a typical sea-going hopper dredge of the Philadelphia District of the Corps of Army Engineers and shows you how the dredgemen dig with safety.

SAFETY is no accident in the dredging operations in the Philadelphia District of the Army Engineers. They can claim an accident frequency rate of 3.3 for nearly 2,000,000 man-hours exposure. Safety begins with every new crew member as soon as he comes aboard any one of the fleet of sea-going hopper dredges or pipeline dredges that maintain over 100 miles of the Delaware River channels that lead to the Port of Philadelphia, the No. 2 port in the nation.

Typical of the procedures used are those employed by Captain William Whittaker of the Sea-going Hopper Dredge CHESTER HARDING. The HARDING is 308′ long, 56′ beam, 30′ molded depth with a draft of 13′ light and 19′ loaded. It has a loaded displacement of 7,430 long tons. It can dredge to a depth of 65′ if necessary, and ordinarily loads approximately 2,000 cubic yards of sand and mud in 23 minutes with its two side drags and two 20-inch dredge pumps. With a speed of approximately 10 miles per hour light, each year this dredge digs and carries for disposal about 6,000,000 cubic yards of material depending upon the composition of material and the distance it must be carried. The HARDING operates around the *(To page 43)*

Mate John T. Williams operating electrically driven davit mechanism which lowers the lifeboat safely into the water in a few seconds.

Mate Charles Austin demonstrates resuscitation for members of the crew. At left of "victim" is Victor Sanner, resident safety engineer.



SAFE

By THOMAS S. EVANS,
Behr-Manning Corporation, Troy, N. Y.

ACCIDENT prevention in general—and hazardous work areas in particular—are serious problems for every plant manager and safety engineer. Slipping, skidding and falling constitute a large portion of industrial accidents, causing prolonged losses of operators' time and correspondingly high insurance rates.

Speaking in generalities however is neither convincing nor conclusive. Case studies on the other hand, although being spot reports and not necessarily representative of general conditions, do have the advantage of being specific and factual. They give the safety engineer something to focus on and in many cases enable him to visualize a comparable condition in his own plant.

CASE STUDY #1

Seeing Is Believing!—Or Is It?

This case study concerns an occasion when a "jeep-truck" in wet weather was hauling three loaded trailers down the ramp pictured above. The load gained momentum; the driver cautiously applied the brakes, but to no avail. The trailers "jackknifed," struck the guard rail, tipped over and crashed onto the railroad tracks.

APPEARANCES ARE DECEIVING. This shipping platform looks safe enough, but when wet, the grating was very slippery. The ramp section was particularly dangerous, causing numerous accidents. In wet weather especially, the hard rubber tires of the "jeep trucks" could not get enough traction to haul normal loads, and often skidded out of control on the ramp.

The twisting action broke the coupling, and the truck careened into the door jamb knocking out about 200 bricks. The load (which happened to be delicate laboratory equipment) was badly shattered; the trailers were damaged; and the fork of the truck was twisted. Luckily, the driver was thrown clear and escaped with minor cuts and bruises.

Accident Report

Type of accident: "Jeep-truck" hauling 3 trailers skidded on wet ramp. Load dumped and badly shattered; 3 trailers damaged; truck fork twisted; door jamb damaged.

Estimated loss: $1,050.

Corrective measure recommended: Installation of waterproof abrasive cloth cleats on ramp.

Accident record after correction: None.

This company had tried various safety measures to eliminate this hazard but none showed any real measure of improvement. They tried laying steel plate flooring on the ramp and welding on a "knob-tread" pattern. It appeared for a while that this might be a solution.

It worked passably well for the rubber-tired power vehicles, but the men moving steel-wheeled hand trucks found bumpy resistance in pushing their loads up the grade.

NOT AN ACCIDENT HERE IN 18 MONTHS. Plant maintenance men installed these 91 waterproof abrasive cloth cleats in five hours, or at the rate of 3⅓ minutes per cleat. This fast application is common rather than unusual, and the abrasive treads have given this company 18 months of accident-free operation at this location.

FEATURE

This is the first of four feature articles concerned with Safe Flooring. The next three articles of the series will be published in the June, July and August 1950 issues of SAFETY ENGINEERING.

FOOTING PAYS OFF

Abrasive Cloth Floor Surfacing Is Low Cost Solution To Slipping Hazards

increasing fatigue and reducing efficiency. In wet weather "slip and fall" accidents continued.

Workers at hazardous operations inside this plant were already protected against slips and falls with a very satisfactory low-cost non-slip floor surfacing fabric, but no one before had tried it to prevent trucks from skidding on the shipping ramp.

The safety engineer turned over the steel plates with the knob-tread down, and to the smooth top side had this durable slip-proof fabric installed. The plates were then put back in place with the new grit side up, and not a single accident has occurred since.

CASE STUDY #2

A Solution to the Safe Footing Problem

An operator slipped on this platform, which was originally smooth metal, and fell against the machine. He suffered multiple injuries and the company lost 23 days of his skilled services.

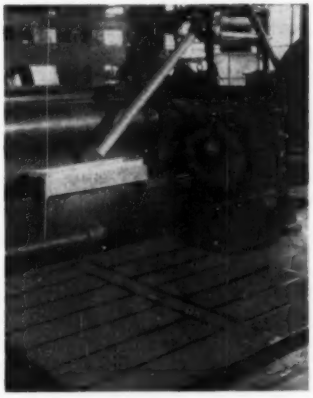
Accident Report

Type of accident: Operator slipped on platform and fell against machine.

Type of injury: Abrasions and three fractured ribs.

Time lost: 23 days.

Corrective measure recommended: Installation of abrasive cloth floor cleats.



SAFE FOOTING SAVES TIME. This picture shows a location that was previously a hazardous work platform—smooth steel plate.

Subsequent accident record at this location: None.

Reading from the annual accident report of this company, we find that in this one plant, the installation of abrasive cloth floor surfacing in active working areas reduced "slip and fall" accidents from 290 days lost to 92 days lost—a saving of 198 days in a single year.

Using the installations of abrasive floor cleats as the focal point of a broad safety campaign, this company reduced accidents from "all causes" in one year from 1227 days lost to 575 days—a drop of 652 days—or almost 2 years saved. In this case, abrasive cloth cleats obviously solved a problem in safe footing.

CASE STUDY #3

Stopping Falls Before They Start

When the stairway below was built everyone concerned thought that it had all essential "safety factors." Structurally it was sound—the best choice of construction at the time. When casualties began to occur extra handrails were installed, safety signs were posted, the whole stairway was painted "danger red." Nothing seemed to solve the problem—accident after accident.

(Continued on next page)

SLIPPERY STAIRWAY PROBLEM. Except for the abrasive cloth treads, this steel-grating stairway is a common sight in many industrial plants. However, several "slip and fall" casualties occurred on these stairs, because oil tracked on the workers' shoes made the steps very slippery.

Accident Report

Type of accident: Employee slipped at top step, lost balance, and fell to bottom flooring.

Type of injury: Lacerations, severe bruises, and sprained back.

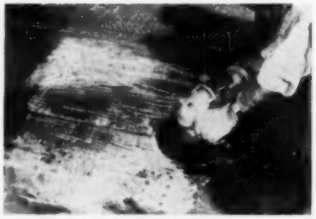
Time lost: 14 days.

Recommendation: Apply abrasive cleats over masonite-type treads.

Accident record since correction: None.

How to Apply Abrasive Cleats

Abrasive cleats are easily and quickly applied as shown in the following illustrations. Three simple steps do the trick.



Area to be covered by abrasive cleats is quickly and effectively cleaned with portable disc sander.

Adhesive for cleats is poured from container and is spread easily and evenly with a cloth covered roller.

Positioning the cleat and distributing the pressure is readily accomplished with hard rubber roller. Operator of the machine can be back on the job immediately after the abrasive cloth has been applied.

The safety engineer in this plant worked on the problem and finally came up with this rather ingenious scheme. Finding that slip-proof abrasive floor-surfacing fabric can be applied to any smooth surface, he had masonite treads bolted onto the steps to get a suitable surface, and then had the abrasive cloth cleats applied on top of the masonite. Since this installation, no accidents have occurred at this former danger spot.

Lacerations . . . severe bruises . . . sprained back, was the staccato report of the painful injuries suffered by one employee who slipped and fell down the stairway. But it is not hard to imagine this accident repeated in many other industrial plants around the country.

Of course this is scare copy—it has to be. Accidents are costly, painful, a deadly serious business—just as serious as any other phase of business. No one can afford to compromise with losses; you have to *stop* them. The loss of skilled workers, if only temporarily, is a definite tangible loss. Operators should be protected as any other business interest—they produce the goods that produce the profit. If they suffer, profits suffer.

CASE STUDY #4

Falls Are Expensive—Safe Footing Is Cheap

"Slip and fall" accidents cost this company 290 man-days in one year. Their safety engineer realized that it was high time to do something and decided to try some slip-proof floor surfacing material. The following accident report shows a typical example of the unsafe footing hazard.

Accident Report

Type of accident: Employee slipped on wet floor striking head on edge of sink.

Type of injury: Abrasion and slight brain concussion.

Corrective recommendation: Installation of waterproof abrasive cloth floor cleats.

WASHROOM PRESENTS HAZARD. Water splattered on the smooth concrete floor of this washroom unwittingly created a hazard to safe footing.

Accident record since correction: None.

This company started a "safe footing" campaign throughout the plant and installed abrasive cloth "foothold cleats" at every location. During the following year, not a single slipping accident occurred at any point protected with these "foothold cleats."

Not only were the plant officials impressed by this report, but the employees themselves voiced hearty approval. The factory workers further asked that "foothold cleats" be installed at several other danger spots on ramps, stairs, walkways, and around machinery. Slip-proof installations like this are saving time, money and lives in many plants.

Production increased on machinery where water, oil and bleaching compounds had long been a slipping hazard. Accidents from "all causes" dropped as employees became more safety conscious; and insurance costs were substantially reduced.

About 1,000 square feet of abrasive cloth floor cleats were used to slip-proof this average industrial plant. Maintenance personnel did the job in 222 hours. The entire project including material, labor, and overhead cost $702.37, or an average of 70c per square foot.

Comparing the accident record *before*, with the *(To page 54)*

HOW CLEAN ARE YOUR WASHROOMS?

The industrial washroom is the focal point of the plant health program. Here, dirt and germs can either thrive or perish. Adequate facilities must be supplied and maintained in a sanitary condition.

By J. L. BRENN, President, Huntington Laboratories, Inc., Huntington, Ind.

MR. LEONARD A. SCHEELE, Surgeon General of the United States, made this timely observation in a talk early this year at the 23rd Annual Convention, American Association of Soap and Glycerine Producers.

". . . although industry has accomplished much within recent years in providing better health services in factories and plants, there are still thousands of medium-sized and small industries who feel that they have done their part when they have provided first aid kits or made a corporate contribution to the Community Chest."

This is a serious indictment of the bulk of American industry . . . for it is the medium and smaller plants that Dr. Scheele mentions, which represent the larger part of our industrial body. Unfortunately, the same criticism can be made of thousands of public and private institutions. What can be done about it? Where does the fault lie?

"Better health services" is much too broad a subject to be explored completely here. But if we break it down into its various parts, we find that one of its most important elements . . . in both industries and institutions . . . is the washroom. The washroom is the focal point of cleanliness. It is a good point from which to start to improve our industrial health picture.

Before considering washroom sanitation, let's take a look at the basic requirements for an adequately equipped washroom. Of course, the ultimate extent of these facilities will be governed by the amount of traffic the washroom is called upon to handle. But modern lavatory equipment, with rust and corrosion resistant finish and fixtures, is a must. The obsolescence of much of the washroom equipment in use today reflects the lack of attention that has been given to the very fundamentals of cleanliness and personal sanitation. Modern toilets and showers to replace clogged and inoperative units: water-resistant floors, stain-resistant walls, bright, new-looking accommodations are the first important consideration. Maintenance of this equipment is a day-to-day job. Subjected almost

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FEATURE

This is the third of three feature articles on Plant Sanitation. The first two articles, dealing with cleaning compounds and floor maintenance, appeared respectively in the March and April 1950 issues of SAFETY ENGINEERING.

constantly to the attack of water, organic acids and dirt, washroom equipment will deteriorate rapidly unless cared for constantly, and properly.

Cleanliness begets cleanliness. An untidy, disorganized washroom naturally repels us. It discourages personal sanitation, with the result that many persons become carriers and transmitters of disease germs that should, and would, have been destroyed by more frequent washing if sanitary washroom conditions existed.

Cleanliness Cuts Costs

In discussing the industrial health situation further, Dr. Scheele points out another important reason for maintaining attractive and sanitary washrooms that workers will use:

"Dermatitis is still the number one in-plant cause of lost time in industry today. . . . The best way to cut down this . . . illness is to help the worker avoid contact with the irritant, whatever it is. After that, the best weapon is personal cleanliness. Many cases of dermatitis can be avoided if the worker can be impressed with the value of washing all parts of his body that have been exposed to any irritant as soon as possible after contact."

As that indicates, providing a clean, efficient washroom is more than just a moral obligation industry owes its workers. It is the means of a real dollars-and-cents savings in reducing lost man hours and in improving employee morale.

In our overcrowded schools, hospitals, hotels, office buildings and apartments, washroom cleanliness demands attention of equal importance. A sound, continuous program of maintenance and care is vital to prevent epidemic conditions.

Let's analyze the conditions which make a washroom unattractive. First of all, unpleasant odors are common deterrents to washroom efficiency. Blower ducts should be installed and kept operating to remove temporary odors. Most disagreeable, however, are the inexcusable permanent odors that arise from "waste traps," unattended cracks in the floor and around urinals, unwashed toilet fittings and stalls, or stalls or recesses in toilet bowls. The presence of such odors spells neglect and carelessness in our maintenance program. Yet a quick, easy, daily washroom cleaning program with plenty of hot water, a scrub brush or rag, and the use of cleansers especially prepared for washrooms would dissipate these odors.

Porcelain Fixtures

Urinals should be thoroughly washed inside and out with hot water and a finely ground, carefully screened porcelain cleaner, rather than with harsh abrasive powders. The hard, brilliant surface of porcelain is easily scratched by common cleansers whose abrasive portion is much harder than the porcelain itself. Once the porcelain glaze is gone, the beauty is gone, the fixture becomes porous, pitted, susceptible to attack by stain and very hard to clean. The best type is one that removes rust, iron stain and organic encrustations through controlled chemical action.

In cleaning toilets acid type cleaners are most effective and thorough as they cannot harm solid porcelain surfaces, yet perform an unexcelled job of cleaning and removing stain. Acid in liquid or solid form is placed in the toilet bowl, allowed to remain for a time, then the bowl is swabbed or brushed clean. Acid in solid form is much safer to handle than liquid acid in case the product container is dropped. The liquid acid must be contained in glass, which if dropped allows acid to splash, while if the can of solid acid is dropped, no harm is done. The can won't break. Dry acid can be swept up if spilled as it is inactive until water contacts it. Caution: Acid is safe only on *solid porcelain* such as toilet bowls and urinals. It will ruin *porcelain enameled* surfaces such as sinks. Pay special attention to the under surface of the overlapping lip around the top of the stool. It often conceals an organic crust that gives off an offensive odor.

The toilet seat, hinges and exterior plumbing often collect deposits of ureic acid that must be removed by daily cleaning with

(Continued on page 39)

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Scrub up often and thoroughly!

Use protective creams and covering where necessary

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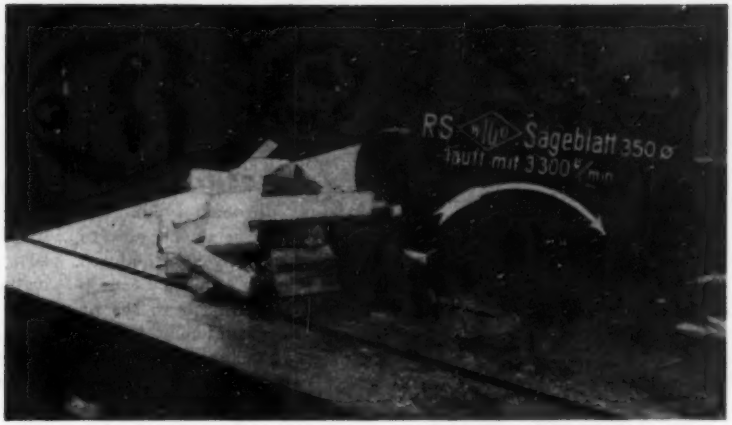


Action photo of the new saw blade running at 3300 R.P.M. with no "kick-back" of the wood pieces.

New Saw Blade Cuts Injuries

The new saw blade has only eight teeth, but offers greater safety along with better cutting

A revolutionary new circular saw blade has been developed to prevent kick-back and reduce hand injuries, in addition to many production advantages.

A BASICALLY new type of circular saw blade with numerous important advantages is now being made available to American woodworking industries, as well as school and home workshops. Developed in post-war Germany primarily in answer to insistent pressure for reducing the hazards of circular-sawing, this new saw blade revolutionizes modern circular sawing. The head of a leading American woodworking plant which has been testing this new blade under production conditions for more than nine months, hails it as "the most significant development in the cutting tools field since the introduction of anti-friction bearings in the woodworking industry."

The cut-control saw blade differs from conventional circular saw blades in that it has only a limited number of carbide-tipped teeth (usually 8) spaced at considerable intervals around the periphery of the blade. This unique design, developed after a scientific and fresh approach to the entire problem of circular sawing, was found to offer many definite advantages to all users of circular saw blades. These include:

1. Elimination of the danger of kick-back injuries;

2. Minimizing greatly the effect of hand cuts when hands contact the blade;

3. Increasing greatly the life of the saw and decreasing the frequency of sharpening. (The American factory test showed over 2036 hours of use before sharpening was required—a sensational performance compared to even carbide-tipped conventional blades);

4. A power saving of 30%;

5. An improved quality cut;

6. A great reduction in the noise of the blade because of the fewer and smaller teeth;

7. Produces chips, which are of more value, rather than sawdust;

8. Simpler to sharpen;

9. Blade can be run in reverse, which creates an almost automatic feed;

10. Saves production time—stays on the job longer without sharpening.

The saw blade was introduced in Europe early in 1949 and has been thoroughly tested there in woodworking plants, schools and universities with unanimously favorable reports. In addition, it has been production-tested in a large American woodworking plant (Gamble Brothers of Louisville) with excellent results. The Forest Products Laboratories, U. S. Dept. of Agriculture, at Madison, Wisconsin and the National Lumber Manufacturers Association have

also tested this new blade * for kick-back safety and power saving.

Development of the New Blade

In Germany after World War II, accidents from circular saw blades rose considerably because of the lack of skill among the workers. A special government organization which supervises the safety devices used in industry approached the firm of Wilhelm Grupp, makers of woodworking tools and machines, with the problem of designing a saw blade which would reduce or eliminate these dangers.

Accidents occur either directly when hands come in contact with the rotating blade, or indirectly by "kick-back" when pieces of wood are thrown against the operator. In the United States, the National Safety Council estimates that compensation paid to workmen for circular saw accidents amounts to about five million dollars a year, with the indirect damages (interruption of work, training of new workmen, etc.) reaching to about 2½ times that figure. Circular saws rank at the top among the most dangerous of industrial machines.

Grupp succeeded in solving the problem by developing a blade with an entirely novel design. Instead of the conventional circular saw blade which is subdivided into teeth covering the whole periphery, the new blade has a perfectly circular periphery interrupted at considerable intervals by teeth (generally eight), which protrude only slightly beyond the periphery. By holding down the size of the tooth to a minimum, i.e. about .02", it was found that the tooth could no longer grab pieces of wood contacting the blade and throw them against the machinist. Furthermore, a hand coming in contact with the blade could not be grabbed by the teeth, pulled into it, pressed against the saw-table, and torn to pieces. If contact is made, the hand rides on the circular periphery and gets only slight cuts which heal easily.

* The name of the American manufacturer of this new blade can be obtained on inquiry to the Editor.

Cutting Performance

In spite of the safety advantages of this unusual blade, one might be doubtful of its cutting qualities and wonder if it would even cut at all. On the contrary, the blade has proved to have better cutting qualities than previous types. Saw blades with a large number of teeth, sometimes as many as a hundred, are based on an outmoded conception of the cutting process. The difficulty with traditional blades is that no sharpening method can produce a peripheral precision sufficient to make all the teeth cut. The non-cutting teeth create only friction by rubbing against the wood, and become blunt very soon.

The conclusion is, therefore, not only that it is not necessary to have so many teeth to cut wood, but also that to have too many teeth is a liability and adds to the danger of operation. In power consumption and efficiency it is also an advantage to reduce the number of teeth. Hardly more power is required per tooth to take off a thick chip of wood than a thin one. Consequently, the power to saw a given cubic amount of wood is almost proportionately reduced with the reduction in the number of teeth. It was also found that the teeth stand up longer before sharpening is required because the fewer teeth make a proper cut and do not rub against the wood.

In reducing the number of teeth to a minimum, it was also necessary to hold down the size of the tooth to .02" to prevent kick-back. Grupp arrived at a figure of eight teeth because (assuming that the blade should make a .08" cut per rev.) then there would be a .01" cut per tooth, and there would still be a .01" margin to prevent rubbing of the periphery and to allow for slight hand honing after a period of time.

An operator can immediately feel the reduced power required for the new saw. He can shove the wood through much more easily and faster. The fact that the wood is cut into chips rather than sawdust is another evidence of lower power consumption.

Tests made with a wide variety of woods and under varying feeds in Germany have shown an all-over power saving of 30%. The University of Zurich, Switzerland, tested the power consumption on the saw-blade-shaft and on the feeding separately, and arrived at a 18-30% saving on the shaft and 20% on the feed.

The reduction of power consumption is of immense importance to industry for reasons other than cutting the power cost. Saws have to be equipped with motors strong enough to handle the maximum requirements of cutting depth and hardness of the wood. To avoid the expense of more powerful motors, many machines have insufficient margins for such peak loads, and stall as a result. But with the new type of blade, less powerful motors are necessary, a factor which is especially important for all portable power saws.

Lifetime of the Blade

The new saw blade has definite advantages in its total lifetime and also in the frequency with which it has to be sharpened. In April, 1949, a saw blade of this new construction was put in use on an automatic rip saw with the Gamble Brothers of Louisville, Kentucky. In August of 1949, this saw had cut 696 hours and 77,000 feet of lumber without sharpening. By December, Gamble Brothers reported that it had performed *2036 hours and cut 304,000 feet without sharpening.*

This particular saw was cutting glue joints all the time, i.e. the cut had to be so fine that the pieces could be glued together immediately without any further planing operation. If it were not for this exacting requirement, it is estimated that the blade could have been used for another 2,000 hours without sharpening as the tips were still sharp. Only the front of the teeth were slightly worn, reducing the cutting angle to about 20 degrees, which is *(To page 38)*

in hot-weather, too

WATCHEMOKET eye SAVERS —the ideal safety goggle

No need to sacrifice safety for comfort. Feather-weight plastic construction eliminates excessive perspiration caused by heavy, old-fashioned types. There's plenty of cool airflow around eyes through standard 18 vents—*extra* circulation through 32 vents for hot jobs. Order Model 10 *(illustrated)* with green frame, and G2 *(light green)* shatterproof plastic lens to minimize glare and ease eye-strain. Just a few reasons why workers find this sturdy goggle *especially* comfortable in hot weather.

WATCHEMOKET OPTICAL CO., INC., PROVIDENCE 3, R. I. In Canada: Levitt-Safety Limited, Toronto 12, Montreal 1.

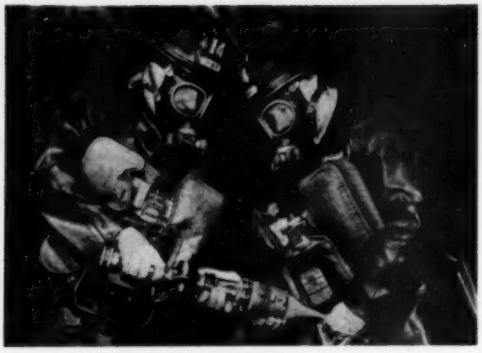


Fig. 1. Self-generating oxygen type mask.

RESPIRATORY PROTECTION FOR FIREMEN

A RECENT bulletin issued by the National Board of Fire Underwriters has warned that many fire departments have not been taking full advantage of modern protective breathing equipment as evidenced so frequently by men, overcome by smoke or other gases, staggering out or being carried out of a burning building. Not only do the men suffer temporary, if not permanent, ill effects but the fire department loses their services and the services of those attending them at a time when they are most needed. Additional companies may have to be called to replace them, thus weakening protection for the remainder of the city. Much of this unnecessarily decreased efficiency of fire fighting operations could be eliminated by the proper use of adequate gas masks or other breathing equipment.

Due to new processes and materials, firemen are running into many gases not formerly encountered. There is no doubt wearing of a mask slows up a man—he cannot do as much or work as fast as without one, but it is a lot better that he be able to work even at half of his usual efficiency than not be able to work at all. The principal need is training in wearing the mask. Men should be frequently drilled in wearing them, part of the time in gas or smoke filled rooms, and practice climbing stairs, raising and climbing ladders, handling hose lines, or carrying out other evolutions, all to give confidence in use of the masks.

During and since the late war new masks have been developed and others improved. The three types of masks ordinarily used by fire departments are the filter, self-contained and hose or supplied air types. The self-contained type can be subdivided into three classifications: The self-generating, the demand and the oxygen rebreathing types.

Filter Type

The most common mask in use is the filter type, frequently known as the "all service type" or Bureau of Mines Type N. This is a device for filtering toxic gases and smoke but allowing the passage of oxygen and nitrogen to the wearer. Therefore, this mask cannot be worn where the oxygen content of the atmosphere has been reduced, by being replaced with gases or smoke, to below 16 per cent which is the minimum amount necessary to sustain life. The lower the amount of oxygen, the less work a person can do. Normal air contains 21 per cent oxygen, and the remainder is mainly nitrogen which is an inert gas. However, in ordinary fires it is seldom that the oxygen is reduced to dangerous levels; it could happen in an unventilated room or

Fig. 2. Self-contained demand-type oxygen mask.

"Cuts our cleaning costs more than $1200 annually"

"Cleans floor area size of city block in 6½ hours"

"Does 4-hour cleaning job in 30 minutes"

"Cleans 55,000 sq. ft. of floor in single day"

A *Finnell* SCRUBBER-VAC

OTHERS SAVE ON LARGE-AREA SCRUBBING ... Why Not You?

Now especially, with the need for cutting costs, savings such as are possible with a *Finnell Scrubber-Vac* are well worth investigating.

With a *Finnell Scrubber-Vac,* all four of the floor-cleaning operations can be done mechanically! This combination machine applies the cleanser, scrubs, rinses if required, and picks up. With one or two operators, a *Finnell Scrubber-Vac* can do a cleaning job better in half the time it takes a crew of six to eight using separate equipment for the several operations.

The model illustrated below, for heavy duty requirements, cleans up to 8,750 sq. ft. per hour. Has new type of water valve that assures uniform flow of water ... ⅓ more powerful vacuum for more efficient pickup ... a *Finnell-developed* trouble-free clutch, affording effortless operation ... improved waterproof wiring and fewer electrical connections, simplifying the cleaning of the machine. Vacuum performs *quietly.* The machine is *self-propelled.*

Have a talk with *the nearby Finnell man.* See what *you* would save with a *Finnell Scrubber-Vac.* Incidentally, it's good to know that when you choose *Finnell Equipment,* a *Finnell* man is readily available to help train your maintenance operators in its proper use. For consultation, demonstration, or literature, phone or write nearest *Finnell Branch* or Finnell System, Inc., 4105 East Street, Elkhart, Indiana. Branch Offices in all principal cities of the United States and Canada.

FINNELL

FINNELL SYSTEM, INC.

Pioneers and Specialists in

FLOOR-MAINTENANCE EQUIPMENT AND SUPPLIES

BRANCHES IN ALL PRINCIPAL CITIES

building, in a basement or in some other confined space. When the oxygen content at a fire is reduced to below 15 per cent smoldering combustion may continue, but most flames will be extinguished. Therefore, if at a smoky fire flames are visible, the use of filter type masks would normally be safe; but if active combustion is not apparent, the safe course would be to use self-contained or other breathing apparatus not dependent on the atmosphere near the fire to provide oxygen.

The filter type mask, as used by fire departments, gives adequate protection against ammonia in concentrations up to 3 per cent and other poisonous gases up to 2 per cent, which limitations are broad enough to cover the great majority of conditions encountered in every day fire fighting, but it must always be borne in mind that there are limits to the protection afforded by this type of mask. The advantages of it are its light weight (6 lbs.) and relatively compact design, the ease and speed with which it can be put on, the length of time it can be used—the canister is good for two hours continuous or intermittent service, up to one year, after it has been placed in service—and its comparatively low initial and operating costs.

Self-Generating Mask

The self-generating type mask consists of a canister that automatically generates oxygen, a breathing bag, a face piece and carrying harness. Because it generates its own oxygen, it is entirely independent of the outside atmosphere and can be worn regardless of how little oxygen is present or how high the concentration of poisonous gases. See Figure 1. It is somewhat bulkier and heavier than the filter type and cannot be put in service as rapidly. The canister is rated for 45 minutes but may be used up to one hour under normal exertion, but if the canister is once used, even for a short time, it must be replaced. Care must be taken in the disposal of the used canisters which should be punctured and put in a pail of water to prevent them from coming in contact with any oil which could cause an explosion; the caustic solution that will be formed could cause burns, especially to eyes, and should be handled with care.

Demand Type

The demand type consists of a cylinder of compressed air or oxygen, necessary valves, face piece and carrying harness. Like the self-generating type, these can be worn safely under any atmospheric condition. Exhaled air or oxygen is vented to the surrounding atmosphere through an exhalation valve, thus as far as breathing protection is concerned, wasting any oxygen in the exhaled breath. Therefore, relatively large cylinders of compressed gas are required for a minimum acceptable operating period, while no breathing bag or chemical remover for carbon dioxide are required. Operating period should be at least 30 minutes. With this type of mask, it is essential that proper means be provided for recharging the cylinder, in some instances even on apparatus. See Figure 2.

Rebreathing Type

The oxygen rebreathing type consists of relatively small cylinders of oxygen, necessary regulating valves, a face piece, a breathing bag and chemicals to remove the carbon-dioxide from the exhaled breath. Utilization of oxygen from the exhaled breath permits a longer period of use from a small cylinder. See Figure 3.

Fig. 3. Self-contained oxygen-rebreathing type.

Supplied-Air Type

The other type used by some fire departments is the hose mask. This consists of a face piece, up to 150 feet of reinforced hose and a hand operated centrifugal blower. As long as the blower, which must be operated by an attendant, is in clean air the wearer is independent of the atmosphere surrounding him. One hazard of this type of mask, that the others are not subject to, is that a beam or other heavy material may drop on the hose cutting it or shutting off the air. There is no limit on the length of time it can be used.

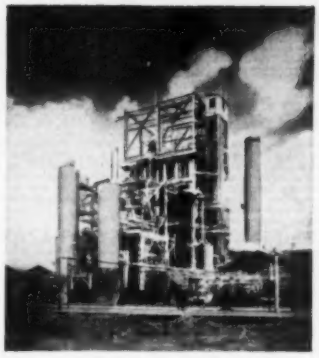
Each of the above types of masks are of value against smoke and toxic gases but are no protection against fire or heat; if it gets too hot to remain in a building without a mask it is too hot to stay with one. The demand and hose type masks can be used at shallow depths underwater but they were not designed for this purpose and should be so used only for extreme emergencies.

The O.C.D. masks which were distributed during the war for civilian defense are of no real value in fires as they do not filter out carbon monoxide; in fact they are apt to create a false sense of security. Fire departments, in general, do not have them, but sometimes other organizations, such as disaster units, still have a supply and might attempt to use them at fires.

Masks are no protection against gases that attack the skin, such as hydrocyanic acid gas, emphasizing the importance of firemen, especially officers, knowing something about the contents of buildings and what gases they may expect to encounter at a fire.

Masks are *(To page 47)*

Chart I. (Note: Eye injuries for crane operators, plumbers and boiler makers also less than 1%.)



Picture by courtesy of the Lummus Co.

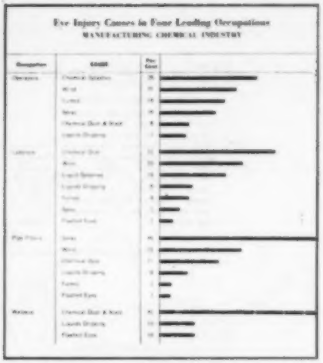


Chart II. (Analysis of the causes of eye injuries for the four most hazardous jobs in Chart I.)

An Eye Program for the Chemical Industry

By T. A. WALSH, Mem. A.S.M.E.; Mem. A.S.S.E.
Manager, Safety Engineering Service Bureau,
American Optical Company

This article is a report on eye protection for the manufacturing chemical industry. That industry, however, encompasses such a wide range of eye hazards that the findings should be of interest to all types of manufacturing plants. The survey outlines the need for eye protection, shows how to select the most efficient type of eye protector, and offers a sound program for reducing eye injuries.

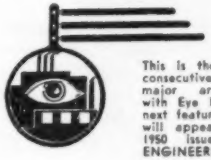
WITH the leveling off of the post-war boom, some industrialists are taking a grim view of the immediate future. Actually, however, only a few industries have felt an economic pinch to a serious degree. On the other hand, it is true that in making plans for the future, the relation of operating efficiency to production costs is of paramount importance and requires more consideration than it has in the recent past.

The wiser heads among management have increasingly recognized that the burden created by industrial accidents and their attendant costs is a very considerable factor, and that prominent in the classification of such accidents are eye injuries. It was through the recognition of these factors that the following report has been developed in cooperation with leaders in safety engineering, particularly as applied to eye protection in the manufacturing chemical industry.

This study included the experiences of major plants in the heavy chemical industry in an area accepted as a chemical manufacturing center in the country.

The suggestions and practices in this report are composite ideas of those found functioning successfully in the plants surveyed. In one or two instances these ideas are supplemented with practices found successful in relation to a program of eye protection in other industries.

FEATURE



This is the second of a consecutive series of three major articles dealing with Eye Protection. The next feature of the series will appear in the June 1950 issue of SAFETY ENGINEERING.

How Many Eye Injuries?

It was found in a two-year period that twenty-five per cent of all the injuries in the manufacturing chemical plants studied were eye injuries. This is higher than the estimated national average of 10 to 15 per cent for the industry. A comparison of these injuries by occupations is shown in Chart I.

It will be noted that operators, laborers, pipe fitters and welders have a much higher eye-injury rate than the other job classifications. A further analysis of these four most-hazardous occupations was made on the basis of the particular agent causing the eye injury. As indicated in Chart II, these causes are attributed to various forms of chemical exposures. The encouraging thing for management and chemical workers alike is that all these exposures, as listed in Chart II, can be successfully controlled through the use of properly designed eye protective equipment.

How to Select the Equipment

Perhaps the most startling fact revealed by Chart II is the wide

CHART III

EYE PROTECTION GUIDE FOR THE MANUFACTURING CHEMICAL INDUSTRY

HOW TO USE THE CHART

Occupations within the industry are listed below. Across the top of the chart at the right are the eye injury hazards. Select the occupation and read across the chart and in the boxes opposite the occupations are the letters which refer to the type of protection required for the hazard and described at the bottom of the chart.

THE EYE INJURY HAZARDS OF THE INDUSTRY AND THE DEVICES THAT WILL PROVIDE MAXIMUM PROTECTION

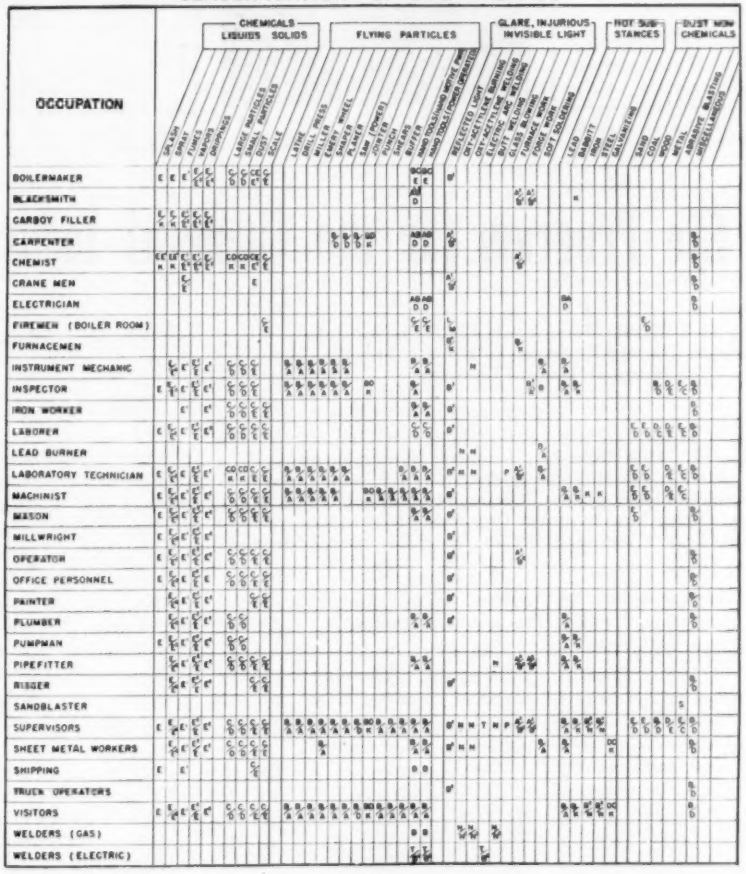
This chart presents a careful summary of recommendations as to the most efficient type of eye protection developed through the cooperation of leading safety engineers for workers in the field of Manufacturing Chemicals. It indicates quickly the causes of eye injury accidents and the specific type of equipment that will afford maximum protection against the exposure.

The chart is not a substitute for firsthand study of individual jobs. Where more than one type of protection is suggested for an exposure, the first one indicated should prove the most efficient. If in doubt, then the final device should be arrived at after a study of all conditions.

PRESCRIPTION GROUND LENSES

Where prescription ground lenses are provided in case hardened optical quality glass, they shall be provided only in Type A or B frame. In exposures where this type of frame is not adequate for the hazard as indicated on the chart, a device similar to Types D, E, E^2 and K shall be used as supplementary protection.

CLASSIFICATION OF EYE-HAZARDS



Type A — Open side spectacle goggle. Clear lenses.

Metal or plastic frames. The latter has good resistance to acids, caustics, solvents, and hydrocarbons. Lenses may be of plastic or case hardened optical glass.

Type A^2 — Open side spectacle goggle. Filter lenses.

Metal or plastic frames. Similar to Type A, except that the case hardened glass lenses reduce glare and filter out the injurious invisible light.

Type B^2 — Side shield spectacle goggle. Filter lenses.

Metal or plastic frames. Similar to Type B, except that the hardened glass lenses absorb injurious invisible light. Plastic or metal side shields.

Type B — Side shield spectacle goggle. Clear lenses.

Case hardened optical glass lenses set in metal eye wire or plastic frames. Side shields of metal mesh or perforated plastic.

Filter Shades	
3 – 6	Gas Cutting
4 – 8	Gas Welding
9	Metal Arc Welding
10–11	Helium Arc Welding
12–14	Metal Arc Welding (Rod 3/16" and over
14	Carbon Arc Welding
10–14	Atomic Hydrogen Welding

Type C Cup goggle. Glass lenses.

Individual plastic eyecups bound with rubber cushions. Case hardened optical glass lenses. Rubber one-piece headband.

Type D Cup goggle. Plastic lenses.

Clear plastic lenses with clear plastic frame, perforated on top and bottom. Cotton elastic headband.

Type E Rubber frame ventilated goggle. Plastic lens.

Molded-rubber, snug fitting frame, with indirect ventilation through slots in top and bottom. Replaceable fabric filter. All-rubber adjustable headband. Replaceable clear plastic lens.

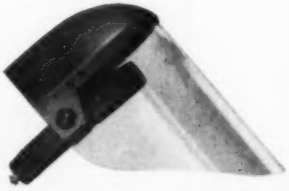
Note: In exposures where drippings endanger head, face and shoulders, use an acid hood as indicated by E[2] on the chart.

Type E[1] Gas-proof rubber goggle. Plastic lens.

Molded-rubber, snug fitting frame. Gas tight. No ventilation slots. All-rubber adjustable headband. Replaceable clear plastic lens.

Note: As indicated on the chart, E[2] is an acid hood of chemical resistant material fitted with plastic window.

Type K Plastic face shield.



Slow-burning, clear plastic face shield, .060" thick, designed to cover entire face. Fiber headguard protects upper forehead and top of head. Adjustable fiber head gear. Leather sweat band.

Type L Fiber hand shield for welding.

Flame- and heat-resistant, vulcanized fiber. Fully insulated. Lens mounting of metal, designed to hold filter and cover lenses. Filter lens absorbs injurious invisible light, in shades 9–14.

Type M Fiber goggle. Filter lenses.

All-fiber frame. Insulated temples. Filter glass lenses to absorb injurious invisible light, or with Cobalt blue glass lenses.

Chart III

Type P Glass worker's goggle.

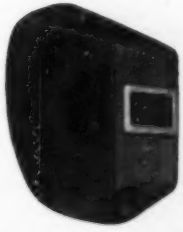
Open side spectacles, with frames like Type A. Didymium lenses.

Type N Gas welding and cutting goggle. Filter lenses.

Individual plastic eyecups, indirectly ventilated. Low heat conductivity, high dielectric qualities. Solid metal side shields. Filter lenses in shades 3–8. Rubber cushions can be provided.

Note: Type N[2] cover goggle is for wear over personal glasses.

Type T Electric welders' helmet.



Fiber helmet is heat and flame resistant. Lens holder of the hinged lift type. Has cover and filter plates, shades 9–14. Adjustable headband. Headgear designed so helmet can be tilted back over wearer's head.

CHART IV

A COMPARISON OF CHEMICALS IN RELATION TO THEIR SEVERITY OF EYE INJURIES AND THE SUGGESTED TYPES OF PROTECTION FOR SUCH EXPOSURES

CHEMICALS	LIQUIDS		SOLIDS		GASES		VAPORS	
	DANGEROUS	VERY DANGEROUS	DANGEROUS	VERY DANGEROUS	DANGEROUS	VERY DANGEROUS	DANGEROUS	VERY DANGEROUS
ACETALDEHYDE	E E² K							
ACETIC ACID GLACIAL		E' E² K					E' E²	
ACROLEIN		E' E² K						
AMYLACETATE	E CE² K							
AMYL ALCOHOL	E CE² K							E' E²
ACETIC ANHYDRIDE		E' E² K						E' E²
ACETYL CHLORIDE		E' E² K						E' E²
ACRYLONITRILE	E CE² K							E' E²
ALLYL ALCOHOL		E' E² K						E' E²
ALLYL CHLORIDE	E CE² K						E' E²	
AMMONIA AQUA		E' E² K			E' E²			
AMMONIA ANHYDROUS		E' E² K			E' E²			
ANILINE	E CE² K							
ARSENIC TRICHLORIDE	E CE² K						E' E²	
BENZOYL CHLORIDE	E CE² K							
BENZYL CHLORIDE	E CE² K							E' E²
BROMINE		E' E² K						
BENZENE	E CE² K							
BUTYLAMINE	E CE² K							
BUTANONE	E CE² K							
P-TERT BUTYLCATECHOL		E' E² K	E K					
CARBON TETRACHLORIDE	E CE² K							
CARBON DISULPHIDE	E CE² K							E' E²
CHLORAL ALSO CHLORAL HYDRATE		E' E² K						
CHLORINATED HYDROCARBONS	E CE² K							
METHYL CHLORIDE	E CE² K							
ETHYL CHLORIDE	E CE² K							
METHYLENE CHLORIDE	E CE² K						E' E²	
COAL TAR CRESOTE		E' E² K						E' E²
HYDROGEN CYANICE—HYDROGANIC ACID	E CE² K							
CRESOL		E' E² K						E' E²
DIETHYLAMINE	E CE² K							E' E²
DIMETHYL SULPHATE		E' E² K						
DICHLOROETHYL ETHER	E CE² K							
DIOXAN—DIETHYLENE DIOXIDE	E CE² K						E' E²	
ETHYLENE DIBROMIDE	E CE² K							
ETHYLENE DICHLORIDE	E CE² K							
ETHYL BENZENE	E CE² K							E' E²
ETHYLENE OXIDE		E' E² K						E' E²
FORMALDEHYDE	E CE² K				E' E²			
FORMIC ACID		E' E² K						
FURFURAL	E CE² K							
HYDROCHLORIC ACID		E' E² K				E' E²		
HYDROGEN PEROXIDE		E' E² K						
HYDROFLUORIC ACID		E' E² K				E' E²		
HEXANONE	E CE² K							
METHYL BROMIDE	E CE² K					E' E²		
MIXED ACID		E CE² K						E' E²
MORPHOLINE	E CE² K						E' E²	
METHANOL	E CE² K							
NITRIC ACID		E CE² K						E' E²
OLEUM		E' E² K						E' E²
PHENOL		E' E² K		EDE²				
PHOSPHORIC ACID		E' E² K						E' E²
PHOSPHOROUS OXYCHLORIDE		E' E² K						
PENTANONE	E CE² K							
PYRIDINE	E CE² K							
PERCHLORIC ACID		E' E² K						E' E²
SULPHUR CHLORIDE		E' E² K						
SULPHURIC ACID		E' E² K						
TRICHLORETHYLENE	E CE² K							
TURPENTINE	E CE² K							
ACRIDINE			E K					
AMMONIUM BICHROMATE				EDE²			E' E²	
ANTIMONY TRICHLORIDE			E K					
BARIUM FLUOSILICATE			E K					
CAUSTIC SODA (SODIUM HYDROXIDE)		E' E² K		EDE²				
CAUSTIC POTASH (POTASSIUM HYDROXIDE)		E' E² K		EDE²				
CHROMIC ACID				EDE²				
CHLORIDE OF LIME			E K					
CYANOGEN COMPOUNDS	E CE² K				E' E²			
SODIUM CYANIDE			E K					
POTASSIUM CYANIDE			E K					
HEXAETHYL TETRAPHOSPHATE		E' E² K						E' E²
MALEIC ANHYDRIDE		E' E² K						
PHOSPHORIC ANHYDRIDE				EDE²				
PHOSPHORUS				EDE²				E' E²
PHOSPHORUS PENTACHLORIDE				EDE²				
POTASSIUM HYDROXIDE				EDE²				
PARAFORMALDEHYDE			E K					
SILVER NITRATE			E K					
SODIUM BICHROMATE			E K					
SODIUM SULFIDE			E K					
PHOSPHORUS TRICHLORIDE		E' E² K	E K					
TAR AND PITCH	E CE² K							
TETRACHLORETHYLENE	E CE² K							
AMMONIA ANHYDROUS (GAS WHEN EXPANDED)					A	E' E²		
CHLORINE		E' E² K				E' E²		
CYANOGEN GAS						E' E²		
OZONE					E' E²			
PHOSGENE						E' E²		
SULPHUR DIOXIDE					E' E²			
SULPHURETTED HYDROGEN					E' E²			
ETHYLENE DIAMINE	E CE² K						E' E²	
CROTONALDEHYDE		E' E² K						E' E²
DIKETENE	E CE² K							
METHYL SILICATE		E' E² K						E' E²

CUP GOGGLE. GLASS LENSES.

Individual plastic eye-cups which are heat-resistant, slow burning and indirectly ventilated. Edges bound with rubber. Case hardened, clear optical glass lenses. Rubber headband.

Type C

CUP GOGGLE. PLASTIC LENSES.

Clear plastic frame is slow burning and heat-resistant. Perforations on top and bottom. Eye-cup edges rubber-bound. Clear plastic lenses. Cotton elastic headband.

Type D

RUBBER - FRAME VENTILATED GOGGLE.

Molded-rubber, snug fitting frame, ventilated through slots in top and bottom. Replaceable fabric filter. Replaceable clear plastic lens. All-rubber adjustable headband.

Type E

RUBBER-FRAME, GAS-PROOF GOGGLE.

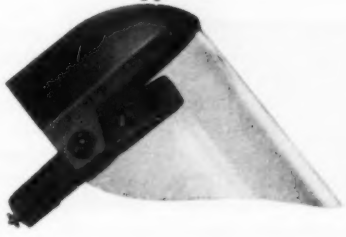
Molded-rubber, snug fitting frame which is gas-tight. Clear plastic replaceable lens. All-rubber adjustable headband. ***Note: As indicated on the chart, E[1] is an acid hood of chemical resistant material fitted with plastic window.***

Type E[1]

PLASTIC FACE SHIELD.

Slow-burning, clear plastic shield to cover entire face. Fiber headguard protects upper forehead and top of head. Adjustable fiber headgear. Leather sweatband.

Type K



range of eye hazards encountered by just these four job classifications in just this one industry, manufacturing chemical plants. These exposures include not only dripping chemicals and liquid splash but also wind, dust, particles and welding flash. Fortunately, eye-protection equipment manufacturers have made great advances in designing safety goggles and shields which will assure protection for all types of exposures. The problem faced by the manufacturing chemical industry, and any industry for that matter, is selecting the particular type of equipment most suitable for the occupational hazards.

Chart III indicates to supervisors and others the most efficient type of protection to apply against specific hazards of the industry. However, the experiences of typical chemical plants have shown that, in addition to selecting the most efficient type of protection, it is also necessary to establish a definite program for the use and maintenance of the equipment. Such a program should embrace:

1. Rules and regulations requiring the use of eye protective equipment.
2. Method of distributing such equipment.
3. Control and maintenance of the equipment.
4. A plan for providing protection for employees having defective vision.

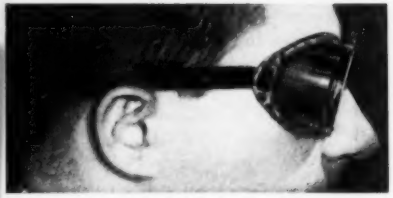
Eye Program for the Chemical Industry

With reference to the rules and regulations governing the use of eye protective equipment, it was felt that the best experience is attained where the use of eye protection is mandatory *for all employees within the confines of the plant and for the entire working period.* Such protection is of a minimum type. Where the exposures are of a specific and serious nature, a device affording maximum protection in relation to the hazard should be applied. Charts III and IV will serve as guides in

CHART V

Suggestions for Fitting Goggles to Workers For Greater Comfort and Safety

EYECUP GOGGLES



1. NOSE BRIDGE. Adjust nose bridge so that any openings on the nasal side of the eyes are closed. Unscrew lens-retaining ring. Swing clamp inside eyecup to release chain. Move chain in or out to shorten or lengthen bridge. Re-engage clamp securely and bridge is locked in position. Cut off surplus chain with cutting pliers. Adjust bridge of cover goggles by means of strap and buckle.

2. HEADBANDS. Adjust headbands to lie flat and low over base of skull. Do not twist up over cap, causing eyecups to dig into cheek bones. Keep band loose enough to slip two fingers under it without stretching.

3. See that goggles are right side up. They should be worn with the s allow section of the rim of the eyecup at the bottom.

4. Replace headbands that are slack and worn.

SPECTACLE GOGGLES

Supply a goggle whose lens size most comfortably fits the employee's face. This will eliminate side over-hang or projections that cause complaints of reflections and will make a closer fit on the nasal side of the eye.

1. Upon selecting a goggle of the proper lens size, be sure nose pads fit flush. Adjustment of these pads can be made through the use of small pliers.

2. Adjust temples or ear bows to fit comfortably over the ears, by drawing the temple slowly be-

Suggestions for Fitting Goggles to Workers for greater Comfort and selecting devices which will give maximum protection.

It has been found through actual experience that where supervision has been charged with the enforcement of the program, the lowest eye injury experience rate is invariably attained. It is also felt that the men enforcing the program would be materially assisted by the application of a standard, as detailed in Charts III and IV. This need is particularly evident in relation to protectors for special exposures as indicated in Chart IV, in which the degree of severity of the possible injury is estimated in relation to the chemical involved.

Supplementing the charts that aid in selecting equipment, should be information covering the fit and adjustment of the protectors. Such information is of vital importance in an industry of this type, particularly where there may be exposure to chemical splash. Chart V offers some valuable pointers in the correct fitting of eyecup goggles and spectacles.

When a protection program is set up on a full time basis, as recommended above, it has been found that the protective equipment can be applied more efficiently if it is distributed from a department established and maintained to handle only such equipment. This department functions under the supervision of the plant safety department. Its employees are familiar with the requirements of all equipment in relation to the hazards to which they may be exposed. They are thoroughly experienced with the fitting and adjusting of all equipment having plano lenses.

Generally, when a centralized point of distribution is maintained, employees are referred to it upon hiring. They are then given the equipment necessary for the hazards of their job, and it is signed for by them on a card or form. Before transferring to another department or terminating his employment, the worker must return the equipment or pay the cost of it.

Where the hazards of the job re-

quire special devices, the employee is provided with them from the distributing center after signing a special type of slip. Equipment drawn on such a slip must be returned to the safety equipment room within seventy-two hours or the employee is required to pay for it. When this special equipment is returned, it is repaired, cleaned and sterilized, and made ready for re-issuing.

Where eye protectors are the property of the person while in the employ of the company, complaints that may arise in relation to their use may be reduced to a minimum in many instances through the medium of goggle cleaning stations located at convenient points.

It was found in the plants studied that there was a full appreciation of the severity of eye injuries within the chemical industry. In order to reduce the severity of these injuries throughout the departments, eye fountains are used immediately following an accident and prior to first aid. This washing away of chemicals from the eye area is effective in reducing severity of injury.

Defective Vision

Not only in the chemical industry but in all industry, defective vision should be recognized in relation to its part in the eye protection program. Those devices discussed in this report that are adaptable to corrective-protective lenses, such as rigid-bridge spectacles, may be obtained in the individual's correction where safety and productive efficiency indicate the need.

That a complete plan for eye protection in the program of accident prevention is accepted by modern management as a definite factor in this segment of waste control is revealed by the experience of one plant contacted. Through its program in a period of seven years, there were only two eyes lost and forty eyes were saved as indicated by broken lenses.

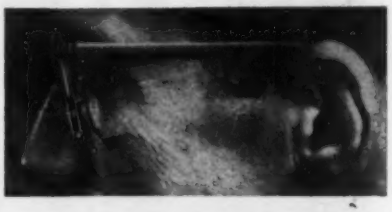
Prior to this plant's eye protection program, they asserted they lost an average of six eyes a year. Through the medium of eye protection in the seven year period, this plant has estimated a saving in Workmen's Compensation alone of $120,000.

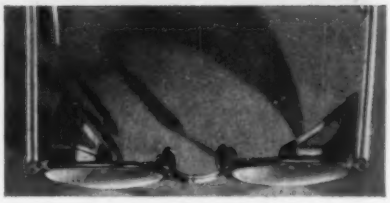
Chart VI is another indication of what may be accomplished through a definite program of eye protection. In this particular plant over a period of six and one-half years, the eye injury cost per employee has been reduced from two dollars to thirty-eight cents.

These specific examples show that such items as accident costs which contribute to the burden of operating overhead can be reduced. This report has also indicated the steps to be taken in setting up a successful eye protection program. Other industries need such programs just as much as the manufacturing chemical plants, but this study of this one industry has shown that a program of industrial eye protection is a sound factor in cost control and labor relations.

Pictures and charts by courtesy of the American Optical Co.

CHART V continued



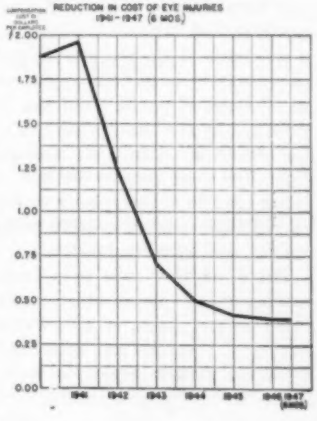


tween thumb and forefinger. Temple lengths should be adjusted to hold the goggles from slipping down on the nose.
3. Temples or ear bows should be angled slightly from frame to ear, so that lenses will be exact right angles to line of vision. This will reduce reflection.
4. Side shields should fit flush with the front frame and line up parallel with the temples or ear bows.

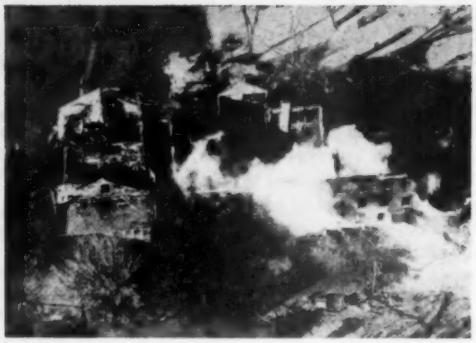
CARE OF GOGGLES

1. Keep goggle lenses clean and replace them when they are scratched or pitted.
2. When not in use, keep them in the container provided for their protection. At night keep them in a safe place near your work or in the storage cupboard provided for all valuable equipment.
3. Wipe your lenses frequently and always with a clean cotton cloth or soft tissue. You will see better and do better work with clean, unmarred lenses—it will take only a moment.
4. Keep goggle frames, including side screens, free from dust and grit by wiping occasionally with clean cloth. If vents become clogged, dip goggles in a soapy water and scrub with brush. If vents are badly clogged, use a solvent to loosen dirt and grease.
5. Always be sure to place cover lenses over the costly filter lenses in your welding goggles. The use of cover lenses not only cuts down lens costs by reducing the necessity of frequent replacements, but keeps the surface of your filter lenses free from pits and scratches, thus enabling you to do better and cleaner work.

Chart VI. Results of an eye program.



According to the Lynn, Mass. Fire Department these swinging doors in the Lynn high school were a major factor in saving the balance of the school when the auditorium section burned with a loss estimated at $250,000. These doors were removed from their mounting after the fire.



Smoldering ruins of the mental ward of Mercy Hospital, Davenport, Iowa, where 38 lives were lost in this recent hospital disaster. Similar disasters cost 47 lives at St. Anthony Hospital, Effington, Ill., in 1949, and 9 lives at a mental hospital at Asheville, N. C., in 1948.

What Is the Safe Way Out?

Revised Building Exits Code Applied in National Hospital Survey

SAFETY and fire protection of hospitals and sanitariums, especially with respect to the application of nationally approved standard safety codes, have been studied intensively following disastrous hospital fires in the past year. Some of the results of these studies are now available in the new tenth edition of the Building Exits Code. Principal revisions deal with conditions for safety in hospitals.

This safety code, developed under the guidance of the National Fire Protection Association, has just been announced as an American Standard. As such it represents a consensus of all who are affected in anyway by hazardous conditions in all types of public buildings, as provided by the basic principles of the American Standards Association. For these reasons the code is being used to an increasing extent as the basis for enforceable state, county, and municipal codes.

Based on this code to a large extent, as well as on other applicable safety codes, a nationwide survey of hospitals has been initiated. A written report is to be made on every hospital, sanitarium, nursing home, and similar institution in the United States. These reports are in the form of questionnaires with 133 major questions to be answered, many being a combination of several questions under one head.

The survey is being conducted under the guidance of the National Board of Fire Underwriters, where all reports are being consolidated, the American Hospital Association, and Association of Casualty and Surety Companies, with 50 other cooperating organizations. From one and a half to two years will be required to complete the survey and prepare a report. This report will be used as a basis for recommendations aimed at increased assurance of hospital safety and adequate protection of life if fires break out.

Present evidence indicates that the application and proper maintenance of nationally approved standards for fire protection in hospitals and related institutions have become greater problems than the development and maintenance of up-to-date codes. The Building Exits Code offers the best known practical provisions against fire and fire casualties in the construction and arrangement of new buildings for hospitals. In spite of the availability of this information, in some existing buildings used for hospitals, sanitariums, nursing homes, and homes for the aged, conditions little short of appalling are being reported by building inspectors. Even the fundamentals of life safety from fire have been found lacking. Exit doors have been found locked. Corridors are found too narrow or restricted to permit rapid removal of patients. Inadequate exits and doors opening against exit travel are still being found.

The code, on the other hand, is under constant surveillance by representatives of national organizations and governmental agencies, and its provisions are based on latest experience subject to majority agreement in the responsible committee. The present code is the tenth in 22 years.

The foundations for the code were laid in 1913 by the National Fire Protection Association's Committee on Safety to Life. Its early studies and reports on major fires in which many lives were lost resulted in the formulation of stand-

(Continued on page 44)

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the new

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the new
1950–1951
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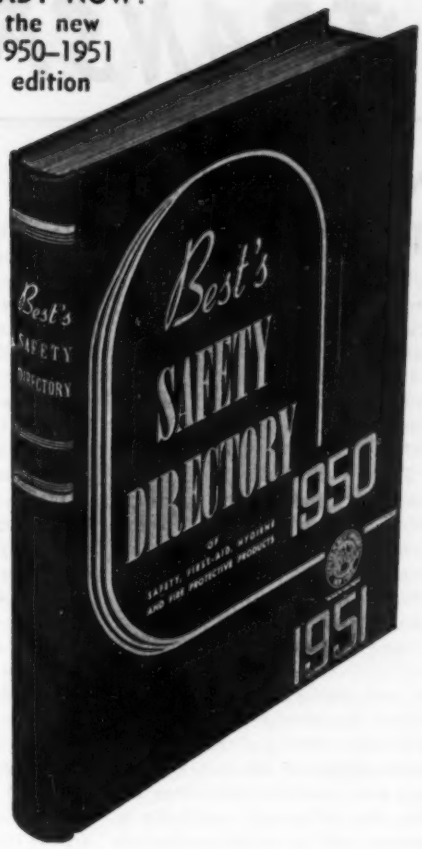

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WHAT safety devices to use
WHEN to use them
WHERE they are used
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It's *two* years since the last Directory! And safety products and protective techniques have multiplied—both in number and efficiency. As a result, your new Directory is *vastly* revised and enlarged.

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TRANSPORTATION

Put the Brake on Trailer Accidents

THE failure of brake equipment and truck manufacturers to sponsor driver instruction on air brakes has led to a number of tank truck and trailer accidents which have brought "serious unfavorable publicity" to the heavy trucking industry, the 20th annual convention of the Greater New York Safety Council was told recently.

John W. Scott, Jr., chief motor inspector, Indianapolis division, sales department, of the Texas Company, described to a convention session the air brake training program given by The Texas Company to all its tank drivers. Discussing accidents to tank trucks and trailers, Mr. Scott said: "Many of these accidents are the direct result of the driver being unfamiliar with the operation of the air application system of his unit, and the care and inspection it requires. Today this unfavorable publicity is serious, and has a definite bearing on the future security of the industry as a whole."

Mr. Scott declared that if every reported case of brake failure were investigated and analyzed in the same terms that accidents caused by human failure are studied it would disclose "some revealing, and in many cases embarrassing, facts." He said it was "surprising how close human failure and brake failure parallel each other."

"Today, with practically every heavy duty unit being equipped with air application and these units being operated around the clock," he said, "due to the investment and operating cost, the driver does not have the opportunity to learn all about the air application system through the medium of the shop."

Mr. Scott suggested that all fleet operators institute their own driver instruction programs on air application of brakes, using either a portable display or a large permanent display of the complete system.

Better Lighting Saves Lives

MORE and more lives are being saved throughout the nation by eliminating a major cause of fatal night traffic accidents—inadequate street lighting.

According to the Street and Traffic Safety Lighting Bureau, 13 cities report an average 82 per cent reduction in night traffic deaths by replacing Model T lights with modern luminaires.

Typical death reductions reported by cities which have improved street lighting include:

78 per cent in Grand Rapids, Mich. by relighting a 4-mile stretch of road leading into the city.

65 per cent in Hartford, Conn. by relighting 31 miles of streets.

80 per cent in Houston, Tex. by relighting 4.3 miles of a main thoroughfare.

91 per cent in Los Angeles by relighting 20 main intersections.

92 per cent in Salt Lake City by relighting a 3-mile stretch of thoroughfare.

75 per cent in Detroit by relighting a main street.

A reduction of only 54 per cent in night deaths would mean a saving of 10,000 lives annually for the nation as a whole, the Bureau says.

Erie Crossing Accidents Hit New Low

MOTORISTS still "bet their lives" against the speed of the Erie Railroad's diesel-powered trains, R. C. Randall, vice president, declared while announcing that accidents and deaths at Erie grade crossings dropped to a new low record in 1949.

Mr. Randall said 63 out of 116 train-auto accidents, or 54.3 per cent, occurred at grade crossings where extra protection—watchmen, flashing lights, bells or wig-wags—are provided by the Erie Railroad. Six drivers disregarded the watchmen's signals, five drove their cars through lowered gates while the others lost their races despite visible and audible warnings. Twenty-seven more were hit by trains when automobiles stalled on crossings.

"The 116 accidents, 30 per cent less than in 1948, are the lowest number of mishaps on Erie grade crossings in 22 years when the current records started," Mr. Randall said. "If the 63 motorists had observed our warnings, the record could have been still lower. Many families would have been without grief."

The Erie official said the record could be partly attributed to the railroad's efforts in promoting safety within the area served by its tracks. During 1949, the Erie spent $233,680 for the installation of flashing lights, automatic gates and other warning devices at grade crossings.

Public Education

In addition, the railroad's own safety motion picture film and program, produced by the Erie police department, was presented in 562 schools in 167 communities. It was seen and heard by 209,359 pupils.

The program was also given before 194 adult meetings, including parent-teacher groups, service clubs, fraternal organizations, churches, etc. A total of 41,340 adults attended the meetings, making a total of a quarter-million people who saw the safety performances.

"State and city authorities must cooperate by passing and enforcing traffic laws governing operation of motor vehicles near railroad tracks," he added. "Drivers must be educated to the danger to themselves as well as to other persons."

He stressed the importance of highway law enforcement because an increase from 15 to 25 accidents occurred in Pennsylvania despite highway rules which require motorists to reduce speeds to 20 miles per hour when approaching railroad crossings and to stop on visible warning. The other states in the Erie area all require motorists to stop when visible or audible signal warns of an approaching train. In these state grade crossings accidents dropped as follows: New Jersey, 24 to 14; New York, 39 to 30; Ohio, 78 to 37, and Indiana, 9 to 8. There were two accidents in Illinois last year and none in 1948.

Mr. Randall said the Erie will continue its traffic safety education program in order to bring further reductions in accidents along railroad tracks. In addition, the railroad's 1950 improvements program calls for installation of extra protection, including flashing lights and automatic gates at 26 more grade crossings at a cost of several hundred thousand dollars. The railroad is also sharing in the cost of several grade separation projects with state and municipal authorities which will be completed this year.

Traffic Engineering Fellowships

THEODORE M. MATSON, Director of the Bureau of Highway Traffic at Yale University, has announced that applications are now being received for ten Graduate Fellowships for the study of Traffic Engineering during the year 1950–51. At the same time, Mr. Matson also made known the major subjects that will make up the course of study for the coming academic year.

Nine of the ten Graduate Fellowships are made available each year through a grant from the Automotive Safety Foundation and the tenth was established by the American Transit Association. Each of the Fellowships provides approximately $1,400 to cover living expenses and tuition for one year, as well as a stipend for individual research projects.

"The problems of traffic accidents and congestion with the growing demand for automotive transportation are challenging the states and cities of this nation," Mr. Matson said. "There is a genuine need for the application of special engineering skills to cope with the planning, design and operation of traffic facilities."

Mr. Matson explained that the awards are open to men who have been granted a degree in some branch of engineering from an accredited college. He added that preference will be given those now employed in street and highway engineering.

The curriculum for the coming year includes the following courses: Highway Traffic Characteristics; Highway Traffic Regulations, Traffic Design, Traffic Planning, Traffic Administration and Practical Traffic Problems. In addition, each student is required to develop a report based on research, which indicates his capacity for advanced work and represents a contribution of original value in highway traffic.

A special form for Fellowship application and additional information may be obtained by writing to the Director, Bureau of Highway Traffic, Strathcona Hall, Yale University, New Haven 11, Conn. The closing date for applications is June 1, 1950.

Sealed Beam Lamp Withstands Fire Hose

SUPPORTING evidence was made for the claim that "moisture cannot get in" the all-glass sealed beam automobile headlamps. The claim was put to a test by a doubtful Citizens' Community Fire Department, of Shrewsbury Township, New Jersey, members of which delivered at one headlamp three streams of water at 350 pounds pressure from a distance of 12 feet.

According to the fire department's report, the glass bulb was not damaged, and the "light burned continuously for the 10 minutes duration of the test."

The report, signed by John L. Barber, Badge No. 48, and witnessed by Chief George White and Engineer Charles Schultz of the fire department, stated that hoses with an inside diameter of one inch and a nozzle tip opening of one-quarter inch were used. This equipment was used "under the belief that it would present a more rigorous test than would one or two two-and-a-half inch lines under less pressure, and with a correspondingly greater nozzle opening."

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Survey all those slippery areas and make them safe now with FOOTHOLD Safety Tread. Write for information.

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BEHR-MANNING · TROY, N.Y.

Use NORTON® abrasives sharpening stones

Saw Cuts Injuries

(From page 22)

not quite so favorable for ripping as the original 25 degrees.

Noise Abatement

The excellent quality of the cut is due to the specific form of the periphery, which is more rigid and less liable to vibrate. Another desirable result of this rigidity and lack of vibration is that noise is considerably reduced. Because the noise of a saw is produced by the teeth cutting through the air, fewer teeth and smaller teeth create less sound. In fact, when running idle, this blade is completely noiseless, if it is running perfectly true.

Sharpening

Traditional methods of sharpening are not suitable for this new type of blade. Instead of sharpening the front of the tooth, the rear and periphery are sharpened by means of a special attachment on an ordinary bench grinder. This attachment requires no special skill to produce a perfect peripheral precision not possible with ordinary sharpening methods. Another attachment has been devised for automatic sharpening machines.

Self-Feeding Action

At present, sawblades rotate against the direction of the feed. Since this new blade does not grab the wood, it is possible to let the blade run with the feed. The advantage is that the blade, when rotating, transports the wood through so that it does not have to be pushed. Practically every normal table saw acquires in this way an automatic feed.

Another safety feature is that the sawdust, which usually covers the operator from head to foot, is blown away from him. Furthermore, with this reverse rotation, a hand coming in contact with the blade is not pulled down on the table, but is thrown up into the air, thereby reducing the possibility of direct injury.

Still another danger factor, the pinching of irregular grown wood, is completely eliminated. The pinching occurs now on the falling side of the blade rather than the rising side.

The reverse run also makes possible a better cross cut because the angle of approach to the wood on the exit-side of the blade is much more favorable. Wood fibres are not pulled out of the wood, as with traditional sawing methods, but the cutting edge of the tooth presses them against the wood.

This reverse run of the blade is of course an optional application and does not in any way influence all the other advantages. The blades have been tested on traditionally operated machines with traditional speeds, feeds, etc.

In summary, the cut-control blade gives: 1. Kick-back safety, 2. Reduced danger of direct injury, 3. Power saving of 30%, 4. Longer lifetime, 5. Better cutting quality, 6. Less noise, 7. Production of chips instead of sawdust, 8. Simpler sharpening process, 9. Possibility of running the blade in reverse, 10. Savings in production time by staying on the job longer without sharpening.

Pictures by courtesy of PTI Incorporated.

Piggott Heads Dockson

THE Board of Directors of Dockson Corporation, Detroit, manufacturers of welding and safety equipment, have announced the election of H. E. Piggott as President and General Manager of that company.

Harold Piggott has served Dockson Corporation for twenty-seven years. Beginning as a shipping clerk in 1923, shortly after the organization of the company, he has progressed steadily in the company as purchasing agent, sales, director of sales, to vice president and general manager, from which he has been promoted to president.

Safety Shoes Are Insurance

OF COURSE, the best customer for safety shoes is the man who ought to wear them. And the first sale is the hardest.

Why? It isn't that the prospect is opposed to protection for his feet. On the contrary he's in favor of it, but he doesn't like to foot the bill . . . all at once.

The money he spends for safety shoes would help pay other bills. The kids need shoes, the wife a dress. Yes, we're convinced that the last feeble resistance to safety shoes is their price. And they're the biggest bargain in protection, comfort and long wear on the market. But some workers pause and think they are something extra that they could do without.

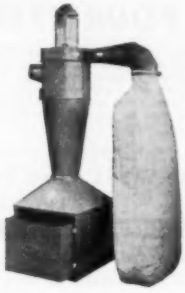
Still Americans are probably the greatest "insurance minded" people on the earth. They'll pay for protection if the payments are easy enough. And this, too, is the best way to sell safety shoes.

Hundreds of plants with successful safety shoe programs have solved the problem with a pay-roll deduction plan. They underwrite the shoes and deduct a sum each week from the worker's check until the shoes are paid for. It's just like insurance. The terms are easy and convenient for the worker; the plant, too, is insured against costly foot and toe injuries.

But more than that, the worker who wears safety shoes discovers that they usually far outwear ordinary work shoes, they're comfortable, and he learns to respect the protection they give his feet. Just putting them on each day makes him safety conscious and more aware of the possibility of injury.

From "The Anchor."

Torit F B Type Dust Separator



These units are designed to handle large volumes of dust, yet permit the cleaned air to be recirculated into the room. In operation most of the dust is precipitated within the cyclone unit, while the residue is captured by the after-filter bag. Five sizes, from ½ to 5 H.P. are available.

TORIT DUST COLLECTORS double up to cut costs in this grinding room

This installation started with one Torit No. 81 Dust Collector serving two surface grinders. Economies from this set up were so great that the company bought three more Torit Dust Collectors to replace the wet type central suction system previously used in this grinding room.

Compact and completely self-contained, Torit Dust Collectors fit neatly into present and future production layouts. Set close to the machine and operated simultaneously, they combine top efficiency with low power consumption.

Torit Dust Collectors for all standard grinding, polishing and cut-off machines are carried in stock. Special adaptations can be quickly made. For complete details, and the latest Torit catalog, write:

TORIT

Manufacturing Co.

304 Walnut St. • St. Paul 2, Minn.

Clean Washrooms

(Continued from page 20)

soap and water. The same is true of the sides of stalls and partitions, and the floor back of the toilet bowl. It's a good idea to follow the cleaning process particularly on toilet seats with the germicidal rinse to kill all bacteria present.

Porcelain wash basins should be cleaned at least twice daily, inside and underneath the bowl, and under the spigots. Keep the drains open with periodic use of a strong chemical drain cleaner . . . one which is guaranteed harmless to pipes, fittings and porcelain, but which will dissolve lint, hair and greasy accumulations. Practical drain care will save costly plumbing expenses.

If you have enameled iron sinks, lavatories or drinking fountains, remember that the glazed finish is only a surface finish and can be easily scratched or chipped by harsh, abrasive cleaners. Enameled iron should be cleaned only with a mild correctly balanced chemical compound.

The metal parts of plumbing fixtures and drains should be washed thoroughly every day. Here again, avoid coarse abrasives or highly alkaline or acid preparations that corrode or attack the metal. There are several good, guaranteed metal polishes that will remove dirt, grease, film and organic matter safely, and at the same time, restore a gleaming lustre to the metal.

Floor Maintenance

Washroom and shower room floors are an ever-present source

THERE'S SAFETY IN THESE NUMBERS

No. 31 Grinders and Chippers Goggles

No. 335 Welders Coverspec Goggles

"CHAMPION"

EYEGARDS

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NEXT BEST THING TO YOUR EYES

Giving your men the finest in eye protection doesn't mean you have to pay premium prices. Get Eyegard goggles and save the difference! They're the goggles that provide greater comfort because the lightweight plastic frame is molded to form-fit the face . . . greater protection because the goggles are impact-resisting . . . greater ventilation through three large vents at side of cup and seven additional vents around the lenses. Cool and fog-free. With all their exclusive features, they cost no more than ordinary goggles. Get Eyegard "Champions" on next order.

Write for free catalog of Eyegard Equipment . . . it will save you money!

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of infection, and a dependable floor cleaner and germicide should be standard equipment in your cleaning program. To be safe, use a floor cleaner that is guaranteed to be harmless on any flooring material. A good cleaner is one that contains soap plus a detergent and a penetrant that breaks down surface tension and floats off the dirt. This "wetting action" is especially important in washrooms, where floor cleaning is so often a matter of removing grease-imbedded dirt.

Follow daily floor cleanings with a germicidal rinse. Avoid hypochlorite disinfectants. They lose their germicidal strength when exposed to light and air, or when they come in contact with organic matter. Obtain a germicide that is guaranteed to kill athlete's foot spores, and use it liberally wherever damp areas exist . . . in shower rooms, on washroom floors, in and around toilet bowls. Occasionally rinse down washroom walls with the germicide. Good shower room sanitation calls for a foot bathing equipment containing an effective germicide to help reduce bacteria incidence on the shower room floor.

Clean-Up Facilities

It is vitally important to keep the washroom well stocked with soap. Industrial plants, in particular, should always use a commercial soap containing an effective amount of antiseptic such as hexachlorophene, the new soap development that is now being widely used in hospitals for surgical scrub-up. It costs very little more than ordinary soaps, yet the germicidal action drastically reduces resident skin bacteria count and acts as a powerful preventive of dermatitis resulting from germs on the skin or in cutting oils and compounds.

Roller towels or paper toweling are often unsatisfactory in washrooms because of the supply and disposal problems. Roller towels are apt to become dirty and unsanitary in a busy washroom. Paper towels, while satisfactory from the personal hygiene standpoint, often create a wet, messy litter around the disposal can. These problems can be avoided by installing a good electric hot-air hand dryer . . . clean, efficient, and, in the long run, less costly to operate than maintaining a towel supply.

Finally, a thorough washroom program will include the use of deodorants and insecticides. The best wall-type deodorant is one that has been molded under tremendous pressure, and is insoluble in water. Such blocks will evaporate uniformly, and last longer than a deodorant made by the melting method. They will keep the air sweetened and refreshed, and should be supplemented with blockette-type deodorants for urinals, deodorant crystals for use in the toilet, and a good, fine spray for space deodorizing. Avoid the common error, however, of using deodorants as a substitute for cleanliness. Deodorants are designed to maintain pleasant conditions between cleanings.

Good lighting, sunshine, clean windows, ventilation and hot water, together with a daily maintenance program employing the right cleaner for each job, are musts in satisfactory washroom upkeep. Properly organized, a plan of this kind is easy to follow, once established. The results will repay the costs many times over.

Emarco Corporation Has New Owners

A GROUP of Clevelanders have purchased the Emarco Corporation of Dayton, Ohio, manufacturers of a portable, electric neon emergency flare, and the taxi strip light, designed for night guidance of landed planes, and recently approved by the Civil Aeronautic Authority.

New officers and directors of Emarco Corporation are Albert F. Munhall, president and treasurer; Ambrose E. Koch, vice president; Harold A. Cline, vice president and chief engineer; and Karl J. Ertle, secretary. Vern E. Messner

is also associated in the new ownership of the company.

Three of the men who head the company have had wide experience in Cleveland industrial activities. Mr. Munhall was formerly secretary-treasurer of The Columbian Vise & Manufacturing Company; Mr. Koch is president of Columbia Metal Stamping Company; and Mr. Messner is president of Cleveland Porcelain Enameling Company. Mr. Ertle is an attorney with offices in the National City Bank Building. The general management, marketing, and distribution of all products will be under Mr. Munhall's direction.

New Safety Directory

THE new BEST'S SAFETY DIRECTORY for 1950–1951, covering the entire field of Safety, Fire Protection and Control, Hygiene, First-Aid and Sanitation, is now available to individual concerns, insurance companies and agencies, as recently announced by the Alfred M. Best Company's Safety Engineering Division.

The Directory provides a unique service for safety engineers and industrial hygienists. It combines all the best practical features of a safety manual, directory, index, encyclopedia and catalog into one comprehensive, profusely illustrated 511-page volume.

The publishers point out that the new book shows a vast increase over the last edition in actual content. In addition, sweeping editorial improvements and rearrangements have been made.

An outstanding feature of the new Directory is its indexing and subject-grouping system. These devices—plus countless illustrations—make it easy to locate safety products even when the user is not certain of the type or name of the product he needs. The logical arrangement of subjects also serves as a check-list of hazards—many of which are frequently overlooked. Typical sections are Arm and Hand, Body and Leg, Eye and Face, Fire, Etc.

The Directory is endorsed and used by the leading compensation insurance companies and includes the standards established for safety equipment by the leading standards groups.

The book is priced at $5.00—with lower rates for quantities. It may be obtained from the home office of the Alfred M. Best Company, 75 Fulton Street, New York 7, N. Y.—or at any of their branch offices as listed on the contents page of this issue.

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"Woven-Gards" are hand protectors, mitts, pads and sleeves made of a new safety material. They provide flexibility, comfort, resistance to abrasion and cutting far beyond that of anything used before. They are extremely oil-absorbent and do an excellent job when handling oily, slippery sheets. The porous weave makes them one of the finest protectors for handling lower temperatures. Enthusiastic users say they have never seen values like "Woven-Gards." Excellent protection at lowest cost. Send now for descriptive folder and prices.

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INDUSTRIAL Safety Apparel

Ebasco Seminar Spotlights Safety Training and Techniques

HOW can a safety program be designed to include small groups of employees working in outlying districts? What qualifications should be sought and what testing measures used in the selection of new employees? When and to what extent should discipline be used in enforcing safety regulations? These were some of the many questions discussed and answered during the third Ebasco Seminar in Public Utility Safety held over a period of two weeks recently, under the joint auspices of Ebasco Services Incorporated and the Center for Safety Education of New York University.

Submitting these questions and collaborating on their solutions were safety, personnel, and operating executives representing prominent electric and gas utilities in North and South America. Lecturers, moderators and discussion leaders for the various sessions included Dr. Herbert F. Stack, Dr. Walter A. Cutter, and Professor M. D. Kramer of the staff of the Center for Safety Education; Dr. Dawson F. Dean of American Home Products Institute, and William T. Rogers and George G. Blair of Ebasco Services.

During the graduation exercises, which climaxed two weeks of intensive study, Dr. Cutter said, "It is gratifying to us at the University to have you tell us of your high appreciation of these courses and the benefits you derive from them, but you must realize that our own efforts in accident prevention are directed and supplemented by just such sessions as we have enjoyed these past two weeks. The progress and success of organized efforts in accident prevention rest in great measure in such pooling of experience and problems and the concentration of our combined skills and endeavors in their solution."

In addition to classroom studies in effective speaking, the psychology of human relations, elements of successful supervision, motor vehicle fleet safety, fire prevention and protection, and current trends and techniques in utility accident prevention, seminar members saw practical applications of modern safety principles on a series of field trips in the metropolitan area. Among the points of interest visited were the plant training school of the New York Telephone Company, the medical department, testing laboratory and Waterside generating station of Consolidated Edison, and the driver training school of the First Army on Governor's Island. Other sessions of interest included an informal problem forum and the association panel, held at American Gas Association headquarters, at which accident prevention representatives of the American Gas Association, Edison Electric Institute, American Institute of Electrical Engineers, American Society of Safety Engineers, and the Association of Casualty and Surety Companies outlined to the group the current activities of these national organizations and the facilities available through them.

"Particularly evident in the re-

cent groups participating in these courses," says W. T. Rogers, Ebasco Safety Consultant and director of the seminar, "has been the increased number of operating executives in attendance. It is stimulating to us all to have these people with us, for it is important that they be thoroughly familiar with the accident prevention problem and informed on current activities in the field since final responsibility for the safety of their workers lies in their hands. Their attendance at these seminars is a very healthy sign. It is certain evidence of the increasing interest of top management in the economic and human relations aspects of accident prevention activities."

Accidents Overboard

(Continued from page 15)

week and carries a crew of 68 men.

After 10 years of intensive safety campaigning, safety has become integrated with all operations of this ship. Safety is now standard practice. Abandon ship drills, fire drills, rescue and resuscitation drills, safety meetings, first aid classes and fire prevention inspection are just a few of those performed regularly. Abandon ship drills have reached the point of precision where it requires only five minutes from the time of the alarm until all lifeboats are safely overboard. Fire drills will produce eight 4-inch hoselines pouring water under 80-pound pressure in 60 seconds.

Another fire precaution is the carbon dioxide system that floods the holds with a fire-smothering action. This system is operated in such a manner that a warning signal is given to crewmen in the hull to permit their departure before the controls that force the CO_2 into inaccessible locations are operated.

Regular inspection of fire fighting equipment is performed by the crew of the HARDING. This includes the alarm system, all types of extinguishers, fire pump, hose lines, fire hydrants, bulkhead doors and auxiliary equipment such as hose, axes, ladders, and gas masks. Detailed records are kept on the condition of the equipment and the dates of inspections.

District Program

To create a spirit of competition among the dredges a regular feature of the employees' magazine, the BINNACLE, is a listing of the safety standings of the dredges. Those with the best records are authorized to fly the Safety Pennant. This Safety Pennant contains stars denoting the number of manhours worked without a lost-time injury.

Another important feature of the Safety Program is the District Medical Officer, Doctor John N. Negrey. Doctor Negrey examines all employees prior to employment, re-examines all food handlers periodically, and is always available for any emergency. Prompt and adequate treatment cuts lost-time accidents.

The safety record in this District reflects the sincere interest of the District Engineer, Colonel E. E.

How KOPPERS COMPANY USES Scott Air-Pak (TRADEMARK) to PROTECT WORKERS In Toxic Areas

*Picture shows wearer with Scott Sling-Pak loosely carried — can be firmly attached in seconds when in action.

INTERESTED primarily in workers' safety — and not averse to maintaining continuous production as well — the Koppers Company, Inc., equips maintenance personnel with Scott *Air-Pak* Safety Breathing Equipment, for safe, quick repair work in toxic areas. Pictures above and below, taken at the Kobuta, Pa. plant of Koppers Chemical Division, present a typical example of how this is done.*

Scott *Air-Pak* supplies cool, fresh *air* (not oxygen) to wearer—can be used safely even in petroleum-vapor areas where use of oxygen is hazardous.

See your safety equipment dealer— or write us *today* for full details.

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Maximum separation of fine dusts is accomplished in Hoffman vacuum cleaning equipment. Bag area is larger—for example, in the 3 H.P. Hoffco-Vac #30 (illustrated), a total of nine bags provide 30 sq. ft. of filter area.

Built for continuous *heavy-duty* service, Hoffman portable units (in 5 sizes) put real economy into your safety dust clean-up campaign with these outstanding advantages.

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and higher vacuum mean you can do more cleaning for longer periods. Exclusive features for disposal of collected dust speed up cleaning operations.

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Proved by hundreds of industrial plants who have established amazing maintenance-free records. No internal, mechanical wearing parts in the Hoffman vacuum producer.

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SAFETY ENGINEERING Salutes a Safety Idea for May

Reaching Every Worker

ONE of the greatest problems in safety education is that of getting the safety message to every worker and making it penetrate his consciousness. Posters, contests, meetings, incentives, all do their part in keeping interest alive. But great persistence is necessary in using all available techniques and in finding new angles. Often, some part of a safety program does not produce the desired results. This does not mean that the whole idea should be discarded. Instead, all that may be needed is a new twist.

A case in point is the way a good safety-education idea, somehow gone wrong, was salvaged by an alert awareness of human behavior, at the New York Naval Shipyard. As described by Rear Admiral Paul B. Nibecker, Commander of the Shipyard, in an address at the 20th annual dinner of the Greater New York Safety Council, the original idea was to reach every worker by imprinting safety slogans on the statement-of-earnings-and-deduction cards that accompanied each pay check. This technique of safety education is being used with apparent success by several factories throughout the country.

At the shipyard, however, a survey showed that very few of the workers were actually noticing the slogans. Instead of throwing the whole thing overboard, they found a way to make people look at the slogan. Each week on ten of the cards, the letters of one word in the safety slogan were all mixed up, and it was announced that anyone who received one of these ten cards could turn it in for a free lunch with a double dessert in the cafeteria. Need more be said?

Gesler. He demands a well-integrated safety program wherein all responsibility is delegated to the operating supervisors. They are held to account for injuries to subordinates. This has resulted in a steady decline in accidents and a steady rise in interest in safety by the individual crew members. Under this system the District Safety Engineer, James L. Cox, is able to concentrate on the development of the Safety Program and to provide safety engineering service and assistance, and coordinate all safety activities for the District Engineer.

Striking at the roots of most accidents, the District Safety Engineer investigates all accidents to determine their cause. Sometimes the cause of accidents can be eliminated through new features in design. He, therefore, reviews all plans for new dredges to make certain these features are included. Since all the dredges for the Army Engineers are designed by the Marine Division of the Philadelphia District Office, this procedure will eventually result in practically accident-proof dredges — an aim worthy of any conscientious Safety Engineer.

Pictures by courtesy of the Philadelphia District Corps of Engineers, Department of the Army.

Safe Way Out

(Continued from page 34)

ard safe practices. This committee was reorganized in 1921 to qualify as a Sectional Committee of the American Standards Association and in 1927 these standard practices were first combined as a complete code.

The American Standards Association, under whose procedure the code was developed, is a tool of all of its member bodies, thus enabling

development of authoritative standards and codes that will be satisfactory to all concerned without expensive duplication of effort and creation of competitive group standards.

Codes and standards developed in this way are never static but are subject to constant improvement. Ten editions of the Building Exits Code since 1927 testify to the activity of the organizations represented. Hospitals are, of course, only one phase of its coverage. It also applies to schools, stores, factories, hotels, apartment houses, office buildings, and places of public assembly. In the new edition jails and penal institutions have been reclassified separate from hospitals and sanitariums for the first time.

New Hospital Provisions

Among significant additions to the new code applying to hospitals are strong recommendations for horizontal exits and the provision of two or more compartments separated by smoke barriers or fire walls in both new and existing buildings. The latter is one means of providing a horizontal exit, which means protected openings through or around a fire wall or a fire partition. Such an exit may also be one or more bridges connecting two buildings on the same level. Fire alarms and fire drills are also given more emphasis in order to be sure that hospital personnel at every level will be familiar with signals and procedure under varied conditions day and night.

With regard to horizontal exits a new recommendation in the code is that "In the planning of hospital exits it is essential that arrangements are made to facilitate the transfer of patients in their beds from one section of a floor housing patients to another section of the same floor separated by a fire wall or smoke barrier. . . . Where the building design will permit, the section of the corridor containing an elevator lobby should be separated from corridors leading from it by smoke barriers. Such an arrangement, where elevators are centrally located, will, in effect, produce a smoke lock, placing a double barrier between the area to which patients may be taken and the area from which they may be evacuated because of threatening smoke and fire."

Defining compartments, the new code states that "Each story in which 35 or more patients are housed shall be divided into at least two compartments by smoke barriers, and the enforcing authority may require stories housing a lesser number of patients to be divided into compartments when, in his judgment, such division is essential to the protection of the patients."

"No more than 150 feet of corridor without barrier against the lateral passage of smoke shall be permitted," and the code recommends that enforcing authorities "may order fire wall, or smoke barriers, or both, to be built in new

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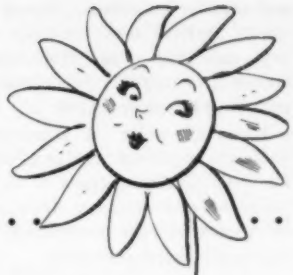

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Dupor No. 40
The Respirator That is U.S.B. of M. Approved for Type A Dusts

Guards against pneumoconiosis and silicosis producing dusts. Has over 40 sq. in. twin filter area. Sanitary face cloth. Soft rubber face mask. "Controlled breathing" valves. Wearer has a panorama view with no blind spots. Unusual rubber, felt and plastic construction makes it extra durable, no denting or bending possible. Efficiency remains unimpaired even after rough treatment.

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The Respirator For Dust, Fumes, Paint Spray

Double filters provide easy breathing. Soft rubber face mask gives air-tight fit. Sanitary face cloth protects against dermatitis or chafing. Has patented DUPOR valves for "controlled breathing," and panorama view without blind spots. A prime favorite for years!

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For the best in eye protection get H. S. Cover's Gas-Tight, Fog-Proof Goggles.. $1.65 pp.

H. S. COVER, South Bend, Ind.

and existing buildings." Doors in smoke barriers may normally be kept open but either close automatically or may be released manually to self-closing action.

Minimum width of aisles and corridors requiring passage of beds has been increased from 60 to 96 inches for new buildings. However, 60 inches is still permissible in existing hospital buildings.

Hospital fire alarms and drills are defined more specifically in the new code, recognizing the differences in conditions from those in buildings for other purposes. It states that "Manually operated fire alarm systems shall be provided . . . which sound an audible alarm in departmental offices, the engineering office, fire brigade headquarters, nurses' quarters, and other locations" where they will not disturb patients. Distinctive visual alarms must be installed at each nurse's station and be used only for fire alarms. Although more fire drills are emphasized for irregular intervals, it is not intended that infirm and bed-ridden patients be moved.

Locations for alarm sending stations are also recommended. "Every hospital of more than fifty beds and more than two stories in height shall be equipped with an approved interconnected fire alerting system suitable for alerting all persons charged with duties for patient care and all employees of the hospital who are within the building. The fire alerting system shall be capable of being operated from the telephone switchboard and the administrative office."

Hospitals should be patrolled thoroughly at least every hour of the day, the new code states, and sufficient personnel should be charged with responsibility for taking effective action in case of fire.

In existing buildings that do not meet code requirements for fire resistance or fire propagation, new provisions have been added. Wood frame buildings with floor areas up to 7500 square feet may be occupied in the two lower stories (but not in basements) when provided with automatic sprinkler protection, protection of vertical openings, and enclosed stairways. Buildings of masonry wall and wood joist or heavy timber construction may be occupied in the three lower stories (but not in basements) when all vertical openings are protected, stairways are properly enclosed, and automatic sprinklers are provided. Four stories may be occupied if walls, ceilings and partitions

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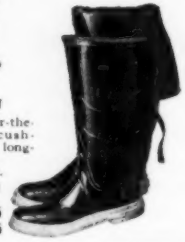
Patented ANTI-SLIP Sole with Squeegee slits that holds a safe grip on slippery surfaces.



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Very flexible, over-the-sock boot with cushioned insole and long-wearing anti-slip TOP-SIDER sole.

Black, men's full sizes, 7-12.

Short, 9.95

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WORK RUBBERS

Lightweight safety on the job. White anti-slip TOP-SIDER sole.

Black, men's full sizes 7-12. 4.95

Special prices in case lots. At your dealer or write us.

Sperry Top-Sider

39 Main Street, Beacon Falls, Conn.

U. S. Air Force Strengthens Ground Safety Program

Left to right: Major F. W. H. Wilson; Lt. E. A. Miller; Capt. W. H. Wood; Capt. J. D. Jarrett; Major Norris Brill; Dr. Herbert J. Stack, Director of the Center for Safety Education.

FOLLOWING a plan projected by Air University, United States Air Forces, five officers are now spending a year in training at New York University working under the Center for Safety Education. These officers are preparing for positions of responsibility when they complete requirements for the Master's Degree, taking ten courses in safety in addition to other required courses. Some of their work is also taken at the Engineering College.

Other officers who have previously received training fill important posts. Among them are Colonel Gilbert Teal of the Office of the Secretary of the Air Force, Washington, D. C.; Major Wilfred Wagner of the Air University; Major Cleo Bishop, assigned to the USAF Flight Safety Department; Major John Stockton; Major Frank Carson; Captain Armando Caseria; and Captain Elwood Driver; assigned to the Office of the Air Force Ground Safety, Pentagon, Washington, D. C.; and Lieutenant Willis Hubert, in charge of Ground Safety at Guam. Colonel Teal, Major Wagner, and Lieutenant Hubert are also candidates for the doctor's degree.

The Ground Safety activities of the Air Forces are in charge of Colonel W. L. Tubbs in the Pentagon.

have a minimum fire rating of one hour.* Buildings of fire resistive construction may be occupied in the eight lower stories when all vertical openings are protected and stairways are enclosed. Occupancy is limited to four stories if defined hazardous areas are not protected by an automatic sprinkler system.

Automatic fire detection systems or automatic sprinkler systems are now recommended for such hazardous areas as boiler rooms, rooms for storing combustible materials, carpenter shops, paint shops, and others, along with adequate supervision to assure satisfactory operation whenever they may be required.

The provisions described are but a small portion of the code for hospitals and sanitariums and indicate only the most important changes incorporated in the tenth edition. Other better-known provisions have been in effect for many years. These cover building construction, adequate exits, housekeeping, ramps, elevators, slide escapes, fire extinguishing equipment, signs and lighting, assembly halls, boiler rooms, air conditioning, and various conditions peculiar to hospitals and sanitariums.

* An ASTM standard test: E119-49.

Pictures by courtesy of the American Standards Association.

The complete Building Exits code, price $1, is available from American Standards Association, 70 East 45th Street, New York 17, New York.

Respiratory Protection for Firemen

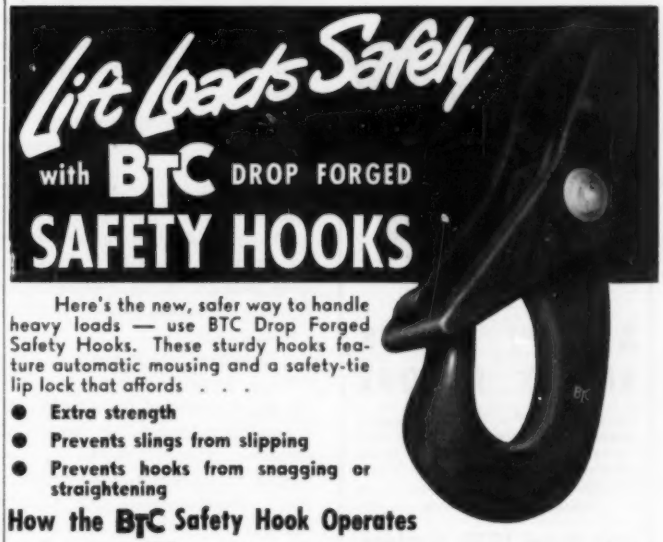
(From page 26) sometimes equipped with diaphragms to facilitate men talking to one another, and hose masks are sometimes equipped with telephones so that the wearer can talk with the attendant at the blower.

An ideal arrangement is to have a filter type mask for each man which he carries either in a pocket in his coat or hangs around his neck ready to put on immediately if he finds considerable gas or smoke in the building, and at least two of the self-contained type of masks on each ladder truck, in addition to any that are carried by rescue or squad companies. Chief officers should carry some type of mask in their cars. Much time is lost by firemen entering a building, then being driven out by smoke or gases and having to put on masks in order to go back again. When using protective breathing equipment at least two men properly equipped should enter the building together wherever possible; frequently, a line is fastened to them to be used for signaling or guiding them out of the building.

Pictures by courtesy of Mine Safety Appliances Co.

What's New in Safety Products?

See pages 67–70



Here's the new, safer way to handle heavy loads — use BTC Drop Forged Safety Hooks. These sturdy hooks feature automatic mousing and a safety-tie lip lock that affords . . .

- **Extra strength**
- **Prevents slings from slipping**
- **Prevents hooks from snagging or straightening**

How the BTC Safety Hook Operates

BTC's mousing automatically engages when loads are applied; disengages when loads are released. The special shoulder and lip lock construction maintain the load carrying capacity even if pin should be sheared. All bearing surfaces are machined for accuracy.

Constructed from drop forged steel to insure maximum strength, BTC Safety Hooks are available in two sizes and types — 5-ton and 10-ton in either Eye Bridge or Shank Bridge. Both sizes replace eight standard open hook sizes, yet weigh only one-third as much.

For safer load handling, order BTC Drop Forged Safety Hooks from your supplier today.

THE BREWER-TITCHENER CORP.
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Please send me bulletins describing the new BTC Drop Forged Safety Hooks.
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N. Y. Safety Conference

(From page 13) the Israelites on incorporating safety into their home construction were read from the Bible by H. W. Darr, Supervisor of Safety at the Bethlehem Steel Company's Johnstown (Pa.) plant, at the session on safety in the handling of materials. Mr. Darr read: "When thou buildest an house, thou shalt build a battlement around the roof thereof, for if any man fall from thence, his blood shall be upon thee."

Mr. Darr said that less than 20 per cent of all industrial accidents were directly attributable to faulty methods in handling materials. He said that accident prevention in material handling was "an evolutionary process, still moving onward to safer and more economical methods." Citing advances in the mechanized handling of materials, he added, however:

"Mechanical contrivances are by no means the complete answer to safety in materials handling. Education, perseverance, maintaining interest, personal equipment all are vital factors in economy and safety."

Elevator Safety

The safest way to travel in the United States is straight up and down again. Addressing the elevator session, Edward B. Dawson, sales manager of the Westinghouse Electric Corporation's elevator division, said:

"Elevators, which carry 17.000,000,000 passengers per year, are the safest means of transportation. When one considers the number of elevators, about 200,000, in the United States, the number of miles they travel—about 500,000,000 miles annually—and the number of passengers handled, the record is remarkable. It is a record made possible by the unending work of city, state and federal government officials, insurance companies, building owners and managers, engineers, architects, and the elevator industry in the preparation and enforcement of safe codes.

"When studying statistics of accidents, it must be kept in mind that we have today in operation many elevators that are 50 years old and that the up-to-date modern elevators are as yet in the minority. Accident records do not indicate the age of the elevator on which the accident occurred. It is believed that the accident rate on the modern elevator is approaching the irreducible minimum.

"Much can be done in reducing the accident rate by applying to existing elevators many of the safety features that have been developed for the new elevators."

Safety Engineer's Duties

Industry stands to gain many intangible benefits from an effective safety program, in addition to increased production, lower operating costs and savings on insurance and compensation rates, according to Wilber E. Lunger, Assistant Vice-President of the American Car

Canadian Fire Meetings

THE annual meetings of the Dominion Fire Prevention Association and the Association of Canadian Fire Marshals will be held this year at the Chateau Frontenac, Quebec City, from May 8th to 11th, inclusive. An interesting program is being arranged and a cordial invitation is extended to all fire prevention and fire protection officials to attend. Further information may be obtained from E. Scholfield, Executive Officer, Dominion Fire Prevention Association, Department of Insurance, Ottawa.

The President of the Dominion Fire Prevention Association is Mr. F. X. Ahern, Deputy Fire Marshal of Quebec, Parliament Buildings, Quebec; and the President of the Association of Canadian Fire Marshals is Mr. S. S. Wright, Fire Marshal of Nova Scotia, 428 Roy Building, Halifax."

A NEW STOCK SAFETY PLAQUE

GC-3 . . . 7¾" x 7¼"—A beautiful two-tone jewelers bronze etching with "Green Cross for Safety" in color, mounted on a genuine walnut shield, only $6.50.

Engraving @ 6¢ per letter.

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Service is right! Extensive factory-proven tests show that DAVID'S Wing Thumb Gloves wear half again longer than ordinary regular thumb gloves. Shown above is our 622BW—a full leather palm heat-resisting glove with seamless leather index finger, knuckle strap and pull tab. No thumb seams to wear out. Sample pair available at no charge to accredited accounts. Wing Thumbs available in all DAVID'S leather gloves. Write for 1950 Catalog and Price List.

DAVID'S GLOVES

DEPT. 5
20 WEST PLEASANT
SPRINGFIELD, OHIO

and Foundry Company. He said also that accident prevention was constantly developing, both in procedures and physical devices, and safety engineers must keep themselves constantly informed on progress in their field.

Mr. Lunger listed the following as "What Management Expects from the Safety Engineer."

1. Perform as staff representatives of the plant manager in the safety program of the plant.
2. Educate supervisors and workmen to make them safety-conscious at all times.
3. Be receptive to suggestions from supervisors and workmen and encourage this practice.
4. Be conscientious and alert to the many intangible benefits of an effective safety program.
5. Recognize the benefits of accident prevention on plan operations and costs.
6. Know the shop equipment and be quick to recognize unsafe practices.
7. Keep informed of progress on safety practice development and safety device improvement.
8. Analyze accident experience and prevent repetition.
9. Be the sparkplug of the entire safety program and keep this program active always.
10. Keep management advised of the progress of the safety program.

(Continued next column)

Pyrene Representatives

THE Pyrene Manufacturing Company has announced the appointment of four sales representatives for its line of fire extinguishers, Frederick W. Schnur of Sayville, Long Island, for the Long Island area; Ralph Krohn, Jr. of Houston, Texas, for the Texas area; and Henry Schneider, Jr. for the Detroit area. Pyrene products will be represented in parts of North and South Carolina, Virginia, and West Virginia by Kenneth R. Shupp, with headquarters in Charlotte, North Carolina.

Safety in the Navy Yard

Rear Admiral Paul B. Nibecker, Commander of the New York Naval Shipyard, disclosed that the navy yard had reduced its accident rate more than 65 per cent in the last three years. Admiral Nibecker was the principal speaker at the 20th annual dinner of the Greater New York Safety Council.

The steady decline in accident frequency was attributed by the Admiral largely to a co-ordinated program of accident prevention which took major responsibility for safety out of the hands of a few supervisors and involved larger numbers of employees in safety committees and other forms of direct responsibility.

"For the year 1946, the shipyard had a rate of 12.36 lost time accidents per million man hours of work," Admiral Nibecker said. "For the year, 1948, this had been cut to 6.63. For the year 1949, this had been cut to 3.71. For January of this year, we got down to one lost time accident for a full month. This was our all time low until then. For February of this year, we operated a full month without a single lost time accident—an all time record for the Shipyard."

Admiral Nibecker said that industrial plants could reduce their accident rates "if the front office is sincerely interested and will take some real concrete action" in safety education and setting up shop safety committees, supervisors safety committees and a "top safety policy advisory committee."

Asserting that the Government's "front office" had been "sold on safety," Admiral Nibecker said: "In our Department of the Navy, and in the Department of Defense, very clear cut and positive policy statements have been issued in support of continuing our progressive accident prevention efforts at all locations where military or civilian personnel are stationed or employed."

The Admiral suggested that industry might adopt some of the following safety aids now in use at

CAN ASPHYXIA STRIKE WORKERS IN YOUR PLANT?

Crushing accidents . . . severe electrical shock . . . heart attacks . . . heat suffocation . . . monoxide poisoning . . . smoke suffocation . . . drowning . . . and other forms of asphyxia can strike down workers in your plant no matter what you make. Industrial experience has shown that accidents involving asphyxiation can occur despite the most carefully laid safety precautions. And when a worker stops breathing, time and death will not wait for haphazard rescue efforts.

SAVE WORKERS LIVES COMBAT DISABILITY with an E & J RESUSCITATOR

YOU HAVE A RESPONSIBILITY to protect your workers from asphyxial hazards, to prevent loss of man-hours, and to minimize company liability for death or injury.

YOUR BEST PROTECTION when asphyxia strikes is the automatic resuscitation action of an E & J Resuscitator. This life-saving instrument breathes for those who are unable to breathe for themselves. Through a face mask it introduces oxygen into the victim's lungs and exhales for him. Because it automatically adjusts itself to lung capacity, the E & J Resuscitator is as safe for a baby as it is for your strongest worker. It is light and durable . . . one person can carry . . . operates on its own oxygen power . . . is easy to use. See for yourself why this safe, efficient instrument is considered essential equipment by industries, rescue squads and hospitals the country over. Send coupon below or write for a demonstration. There is no obligation to buy but you owe it to your company to see the resuscitator in action.

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the naval shipyard in Brooklyn:

Score boards giving the number of lost time accidents for the month are posted at each gate and carried on the fronts of the Yard buses.

A safety flag flies from the top of the staff in a prominent location in the Yard every day there is no accident. When there is a lost time accident the flag is lowered to half-mast for a full day.

Each shop carries on its outside an attractive sign symbolic of the shop's activity. Displayed prominently on the sign is a figure telling how many days that shop has operated without a lost time accident.

An inter-shop contest is conducted, with a monthly flag awarded to the shop with the greatest improvement in its safety record over the corresponding month of the year previous.

Awards are made to supervisors whose gangs have gone a full year without a lost time accident.

A shipyard paper keeps all hands informed on how each shop stands "safety-wise and otherwise." Admiral Nibecker said that as an experiment some of the senior civilian supervisors were induced to write feature articles on safety for the Yard paper. He reported that this had "done wonders in getting some of the 'not so enthusiastic boys' to do some thinking on the subject of safety and finally getting enthusiastic about it."

Admiral Nibecker said safety slogans were printed on the statement-of-earnings-and-deduction cards that accompanied all pay checks. However, he said, a survey showed that most of the Yard's 9,650 employees did not notice the safety slogan. Something was then done to draw their attention to the safety message.

"We simply announced that each week on ten of these cards the letters of one word in the safety slogan would be all mixed up and whoever got one of these cards could turn it in for a free lunch with a double dessert in our cafeteria. I can assure you we are getting back a very high percentage of our ten winning cards each week."

The Admiral said the Yard's public address system had formerly been used to report details of accidents with suggestions on how to avoid repetition.

"I don't go for that type of correction," Admiral Nibecker said. "We adopted a plan whereby whenever an employee had a 'near miss' but was protected from a painful or serious accident because he was wearing recommended safety equipment, I would come down to his working area and talk to him and make a tape recording of the incident and then rebroadcast that talk over the public address system. I'm satisfied that this has done much to convince the man on the machine that the use of our recommended safety equipment pays off."

The Admiral explained the workings of the safety committees at various levels. While this required part of the time of a larger number of workers, it made possible, on the other hand, the elimination of many employees from full time duty as safety wardens. He said the former safety wardens were re-rated to other work. This new program had helped bring about the big decrease in the accident rate, the Admiral declared.

Landlord's Problems

Accidents in buildings, a major worry of landlords, can be reduced through training of building employees to recognize possible accident causes and remove or report them at once. The liability of an owner of an apartment or building to the public was described at the Building Management session, by E. J. Kubat, Jr., safety engineer, special engineering service of a leading insurance company. Mr. Kubat explained how the liability laws related to various parts of buildings and premises. He then said:

"And there are the cases where no specific law applies, or where application of a specific law is difficult to determine, in which event

Safety and Service Emblems

Fewer accidents mean more man-power. Safety Emblems for various lengths of "no lost time" service instill the competitive spirit so necessary for employee cooperation.

Service Award Emblems for 1, 3, 5, 10, 25 and 50 years of continued employment, increase loyalty and reduce labor turnover.

Easily seen and readily recognized emblems such as those illustrated above are paying big dividends in many large plants. Also Identification Badges, Plaques, Athletic Medals, Trophies, etc.

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3839 WABASH • DETROIT 8, MICH.

Donald Mann Represents Vul-Cork Soles

DONALD Z. MANN has been appointed Eastern Division Sales Promotion Representative of the Vul-Cork Sole Division of The Cambridge Rubber Company. Mr. Mann will also represent the Vul-Cork Sales Department in New England and the Middle West, working directly under E. T. Richardson, Vul-Cork Sole Division Sales Manager, making his headquarters at the Cambridge Taneytown, Md. plant.

Mr. Mann, a graduate of Gettysburg College School of Business Administration, has been Mr. Richardson's assistant since leaving the Service, where he was Corporal in the 85th Infantry Training Battalion at Camp Roberts, California.

---

the case must be adjudicated on its merits with recourse to the standard of the foresight normally expected of a reasonable man.

"There are a multitude of amplifications possible for such specific cases as the necessity for window anchors for safety belts, failure of signed releases to actually remove the liability from the landlord, and the avoidance of dangerous conditions which might prove attractive to young children and lure them into danger.

"While it is desirable to avoid these causes of accidents for financial reasons, it is even more to the point that few people want to be the cause of physical injury to others. The remedies available to the landlord are, among others, maintenance of his structure in good repair and training employees to recognize possible accident causes and remove them quickly."

Humanics of Prevention

A management spokesman told the management-labor conference that industrial safety was a management responsibility which could not be delegated. T. O. Armstrong, director of plant labor relations of the Westinghouse Electric Corp., of Pittsburgh, said management's responsibility included the safe design of machines and equipment, installation and maintenance of guards where necessary, proper assignment of workmen, and safety education at every level of supervision.

"We have progressed considerably with the 'mechanics' of the safety task," Mr. Armstrong told the session in the Hotel Statler, "and we are fast learning more about the 'humanics' of the prevention job. In other words, heretofore we have been concerned primarily with designing the tools that will produce a required piece in sufficient quantity and within the tolerance limits.

"The factor of safety came as an afterthought. We designed, made the set-up and then, if we had time, looked around to see if we could make a guard to fit. We were concerned primarily with production and precision. We are now concerned with a third factor as part of the design and the set-up—that of protection. The three P's of good design now are Production, Precision, and Protection."

Fire at Convention

Fire broke out at the convention when heavier-than-air gasoline fumes seeped down two flights of stairs to a basement where they were ignited by the furnace. The flames were real, and there were crackling explosions—but it all happened in a *(To page 55)*

it's new!

It's a coverall CLEAR PLASTIC industrial goggle

The No. 612 Sellstrom Coverall Industrial Goggles were introduced less than two years ago. Since that time they have been tested by hundreds of users, who have voiced their approval by a steady stream of orders.

These goggles are designed to accommodate reading glasses of almost any type.

They are of one piece frame construction—can easily be handled by one hand—both eye cups move as a single unit.

The two center clamps permit adjusting to fit any face. The rolled edges assure utmost face comfort.

They are perfectly balanced, weigh only 2½ ounces, the weight is evenly distributed.

Made of tough plastic, and will render long service even under severe punishment.

The clear plastic offers wide vision, permitting the worker to observe others where men work close together.

Will accommodate any type 50 m/m lenses.

In the same style and size we offer two companion goggles; our No. 610 Coverall Welding Goggles and our No. 611 Coverall Grinding Goggles.

Write for our No. 610 folder, which fully describes and illustrates these three popular Coverall Goggles.

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MANUFACTURING COMPANY
Offering more than 500 Eye and Face Safeguards
656 North Aberdeen Street, Chicago 22, Illinois

Chain Saw for Rescue Squad

A new piece of life-saving equipment, a power-driven chain saw, is presented to Philadelphia's famed Rescue Squad No. 1 by Junior Chamber of Commerce in recognition of its fine record in emergencies. Alvah B. Adams, Philadelphia Jaycee president, presents the new emergency saw to Chief Engineer John Cost and Captain Dan S. Rimmer while members of the squad look on.

PHILADELPHIA'S famed Rescue Squad No. 1 has put in use a new piece of life-saving equipment that may encourage a new practice in fire fighting and rescue work in all sections of the country, particularly in rural areas. The new equipment, a power-driven chain saw, was added to the squad's already imposing array of rescue devices that include oxygen tanks and masks, resuscitators, road-breakers, drills and floodlights.

The compact one-man chain saw, light in weight and easily handled, will be used to cut through heavy beams and timbers that obstruct rescue operations. At major conflagrations the saw will be utilized for quick entrance through doors or collapsed passageways. It does the work of many axes. Already the chain saw has proved itself where hard-working crews have quickly cut fire-breaks with it and halted the onrushing flames during forest fires.

Safety experts see an application for the saws in rural fire organizations both for property protection and forest fire fighting and for rescue work on isolated farms.

Captain Dan S. Rimmer, squad chief, stated his unit answered an average of 600 emergency calls a year.

"The chain saw will be an invaluable piece of equipment in many life-saving emergencies," said Captain Rimmer. "Being a self-contained power unit, and therefore not dependent on the truck's generator, the equipment can operate more flexibly in remote or awkward situations."

In demonstrating the equipment for television and newsreel cameras, the Rescue Squad pinned one of their members under a pile of heavy beams and debris. In a matter of minutes, another squad member had cut through the pile of debris with the chain saw, enabling stretcher bearers to reach the "victim."

Chain saws, both one- and two-man operated, have long been used in such timber operations as felling trees, bucking and limbing logs to mill lengths and timber clearance projects. The keen-toothed revolving chain, which travels at high speed around a wide-bladed steel rail is powered by a compact gasoline engine.

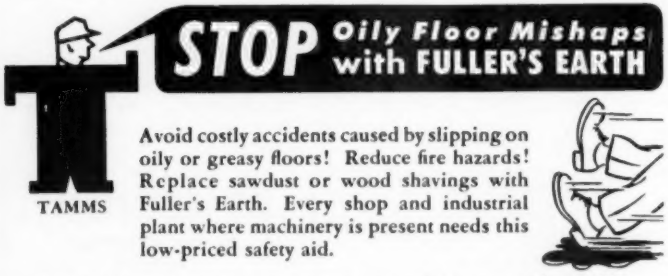
The saw was presented by the Philadelphia Junior Chamber of Commerce to the squad in recognition of its outstanding record of lifesaving activities.

Picture by courtesy of Henry Disston & Sons, Inc.

What's New!
See Pages 67-70

RCA Metal Detector to Eriez

MR. P. B. REED, Manager Industrial Equipment Division, Radio Corporation of America, announced recently that the Eriez Manufacturing Co., Erie, Pennsylvania, has been appointed distributor for R. C. A. Electronic Metal Detectors. Eriez will handle all sales in the United States and Canada. The detector will discover any metal that becomes embodied in materials being processed. It warns of the foreign body by bell, light, etc., and can also be set up to halt conveyor lines. Eriez produces a complete line of magnetic equipment, used to separate tramp iron from non-magnetic materials.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TAMMS
Avoid costly accidents caused by slipping on oily or greasy floors! Reduce fire hazards! Replace sawdust or wood shavings with Fuller's Earth. Every shop and industrial plant where machinery is present needs this low-priced safety aid.
Fuller's Earth absorbs oil and grease — and it's non-inflammable.
Write for FREE SAMPLE to test.
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(FORMERLY TAMMS SILICA COMPANY)

Allentown, Pa.

Twenty-third Annual Eastern Pennsylvania Safety Conference, May 2. Harry C. Woods, executive secretary, Lehigh Valley Safety Council, 602 E. 3rd. St., Bethlehem.

Chicago, Ill.

Twenty-seventh Annual Midwest Safety Show, May 2–4. (Hotel Sherman). Joseph F. Steeh, Manager, Greater Chicago Safety Council, 10 N. Clark St., Chicago 2, Ill.

Charlotte, N. C.

Twentieth Annual North Carolina Statewide Industrial Safety Conference. May 3–5. (Hotel Charlotte). H. S. Baucom, Safety Director, North Carolina Industrial Commission, Raleigh, N. C.

Baltimore, Md.

Maryland State-Wide Safety-Health Conference and Exhibit, May 4–5. (Lord Baltimore Hotel.) Joseph A. Haller, executive chairman, State Industrial Accident Commission, Equitable Bldg., Baltimore 2, Md.

Detroit, Mich.

Twentieth Annual Michigan Safety Conference and Exhibit, May 15–18. (Book Cadillac Hotel). S. M. Foeller, executive secretary, Michigan Consolidated Gas Co., 415 Clifford, Detroit 26, Mich.

Duluth, Minn.

Twenty-sixth Annual Lake Superior Mines Safety Council, May 18–19. (Hotel Duluth). John A. Johnson, supervising engineer, U. S. Bureau of Mines, 18 Federal Bldg., Duluth 2, Minn.

Roanoke, Va.

Sixteenth Annual Virginia State-Wide Safety Conference, June 1–3. (Hotel Roanoke). W. W. Myers, managing director, Richmond Safety Council, Allison Bldg., Richmond 19, Va.

THE Future SHOWS

Washington, D. C.

President's Conference on Industrial Safety, June 5–7. (Dept. of Labor Auditorium.) Secretary of Labor Maurice J. Tobin, general chairman of the conference.

Pittsburgh, Pa.

Twenty-fifth Annual Western Pennsylvania Safety Engineering Conference, June 7–9. (William Penn Hotel). H. H. Brainerd, Executive Manager, Western Pennsylvania Safety Council, Chamber of Commerce Bldg., Pittsburgh 19.

Boise, Idaho

Western Safety Conference, June 18–20. L. M. McKay, Vice-President, Western Safety Conference, P.O. Box 1038, Boise, Idaho.

Chicago, Ill.

Thirty-eight Annual National Safety Congress and Exposition, October 16–20. (Stevens Hotel). R. L. Forney, general secretary, National Safety Council, 20 N. Wacker Drive, Chicago 6, Ill.

For FREE

Worthwhile Bulletins on Safety Subjects

See page 71.

The Better Way

TO CLEAN EYE PROTECTION IS THE K-LENS-M WAY

Industries report that eye injuries have decreased—with considerable savings of time and effort. To increase the usefulness of your safety eyewear use

THE BEST IN LENS CLEANING EQUIPMENT

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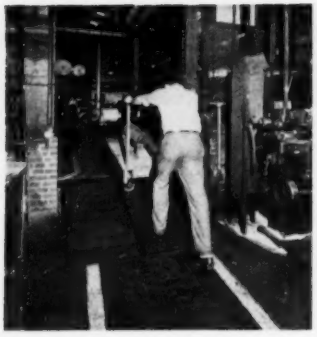
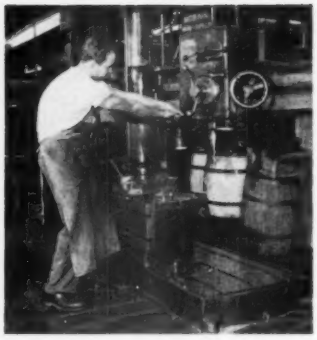


Slipping and falling on ramps and inclined walkways is a thing of the past with this non-skid surfacing.

Rapid movement on printing press work platforms is made safe with the installation of abrasive cleats.



Freedom from the fear of slipping enables this radial drill press operator to work efficiently and well.

Safe Footing Pays

(From page 18) "Safety" record *after* installation, we find that 290 man-days were lost by "slip and fall" accidents in the previous 12 months, as against 222 hours or 28 man-days required for the complete installation, after which there were no slipping accidents in the protected areas. A list of accident liability factors, including medical expenses, training replacements for the injured, lost production, investigation and reports, which although incomplete, show a conservative estimated annual loss of about $5,000.

This estimated loss of $5,000 is thus a subject of reasonable comparison with the $700 cost of installation. Going a step further, it might be said that the latter figure brings this company's "slip and fall" accidents to an end, saving them several thousand dollars a year. Thus abrasive cloth floor surfacing has proved its value in this plant as it has in many others.

The individual case shown here is typical of numerous others. The cost of installations of course vary with individual requirements. The price of material depends on the square footage to be covered. Labor cost varies with local wage rates. The percentage for overhead is low because abrasive cloth floor cleats are quickly and easily installed and can be used immediately after laying.

Abrasive cloth cleats have a wide variety of applications as illustrated by the accompanying pictures.

Abrasive cloth floor surfacing is readily available throughout the country through most industrial supply distributors. For the benefit of those who are not familiar with abrasive surfacing fabric it may be of interest here to describe the characteristics of these products. They are made of a durable treated cloth fabric securely coated with very hard electric furnace grain. They eliminate the danger of slipping and assure safe footing in all hazardous areas. Waterproof, weatherproof, resistant to heat or cold, vibration or shock and unaffected by oil, gasoline, alkalies or mild acids, they are available in rolls, cleats, or special shapes for application to any smooth surface.

Abrasive cloth floor fabrics are generally pre-coated with abrasive at the factory, and special application cements have been developed to insure a firm application under many varying conditions. It is recommended that these special adhesives be used in all applications to assure the user complete and long term satisfaction, and for the low dollar investment, abrasive cloth floor surfacing pays off handsomely.

Non-slip treads at bus entrance are low-cost solution to passenger accidents on public conveyances.

Pictures by courtesy of Behr-Manning Corp., Div. of Norton Co.

A C M E

The Gas Mask That Checks

"HUFF AND PUFF"

You can wear the Acme Full-Vision Gas Mask two or three times as long as others without worrying about "huff and puff." An exclusive Acme feature, the Dead Air Check Valve, actually limits the amount of carbon dioxide the wearer rebreathes and thus helps to check breathing difficulties at their source.

This is another Acme innovation that proves that protection can be comfortable.

Write for the complete story on Acme Gas Masks for all occupational hazards.

ACME
PROTECTION EQUIPMENT CO.
3037 West Lake St., Chicago 12, Illinois

N. Y. Safety Conference

(From page 51) miniature on a protected platform and was controlled by a former official of the Lynn, Mass., fire department who turned magician some years ago to conduct fire protection demonstrations.

E. W. Williams, former assistant fire chief, showed a tense audience composed largely of women, at the convention's Home Safety session, how faulty electric appliances, cleaning fluids, overheated irons and careless acts of housewives and children often lead to destruction and death. Mr. Williams said that 80 per cent of all fires in the United States were caused by "common, everyday neglect and carelessness."

Thirty years ago, Mr. Williams, a young fireman making a routine theatre inspection, paused to watch the great Houdini perform magic on the stage. He made magic his hobby, and adapted the tricks of legerdemain to vivid demonstrations of the terrifying effects of fire as he worked his way up through the department as an expert on fire prevention. He is now director of a leading fire insurance company's traveling show and demonstration of "Fire—In Miniature."

Dry Chemical Extinguishers

Dr. William F. O'Connor, Fordham University associate professor of chemistry, told how the rubber shortage of World War II led to the development of dry chemicals as a major agent in fighting fires in flammable liquids, electrical equipment and certain other fires. Dr. O'Connor said that widespread use of dry chemical against such fires was "one of the outstanding developments in fire-extinguishing agents in the last decade." As a result of improvements in recent years, he said, dry chemical has earned its "rightful place in the family of fire extinguishing agents."

"It has certain limitations," Dr. O'Connor declared, "but its advantages are noteworthy, especially for fires involving ether and other volatile liquids."

Even today the exact mode of action of the dry chemical on a fire is not clearly understood, but the important thing is its effectiveness, Dr. O'Connor said.

"In the early days of 1942," he said, "when butadiene was selected as one of the ingredients for synthetic rubber, none of the conventional extinguishers could handle this new material. After a few hurriedly developed tests at the largest butadiene-styrene plant, we found that dry powder behaved so well and had such possibilities that it was adopted as the specific extinguisher for butadiene fires.

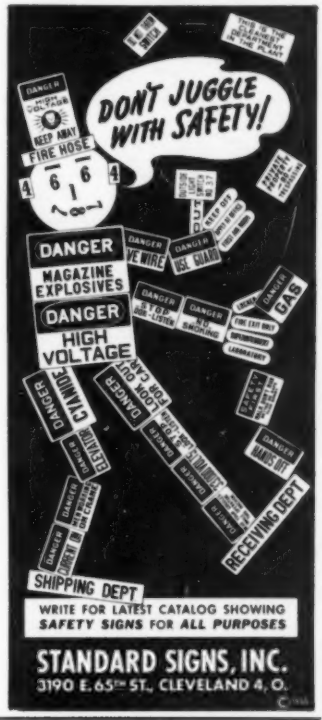
"Along with the butadiene hazard came the hazard from other volatile chemicals, acetaldehyde, ether and liquefied petroleum gases. Several tests were run to simulate operating conditions such as leaky flanges and overhead pipe line leaks with flammable materials under pressure.

"Dry powder showed itself to be phenomenally effective. With ether becoming more widely used as a solvent in both organic and inorganic processes, larger and more carefully controlled tests were recently run to determine the effectiveness of dry powder on ether fires."

Color motion pictures were shown of the tests, showing the effectiveness of dry powder as compared to several conventional types of fire extinguishers.

"In the dry chemical extinguisher," Dr. O'Connor explained, "specially prepared sodium bicarbonate is expelled through a properly designed nozzle by means of an inert gas, usually carbon dioxide or nitrogen. The exact mode of action has not been proven nor is it clearly understood. At present it is thought that the heat of the fire liberates CO_2 from the sodium bicarbonate, but this is probably only one of several factors that combine to make this agent effective."

New Products
See pages 68–70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KEEP AWAY FIRE HOSE
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Over 70% of the largest manufacturers in the United States are using Onox in their shower rooms.

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ORIGINATORS OF SKIN-TOUGHENING METHOD OF ATHLETE'S FOOT PREVENTION

LEARNING THE

SPRING FIRES

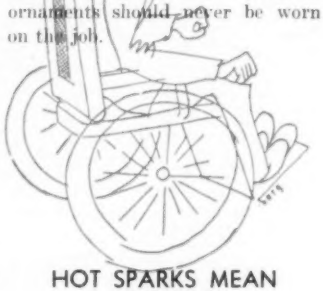
NOW that springtime is here, plant maintenance men should be giving attention to the fire hazards outside the buildings. Flames can spread rapidly through dried grass and weeds and may damage valuable yard storage. Leaves and paper have probably accumulated during the winter around wooden buildings or outside platforms. Such accumulations need only a carelessly tossed match or butt to start a serious fire. Now is the time to clean up the yard and see that a properly designed incinerator is used for waste which must be burned on the premises.

THE SHOE THAT CHEATS ACCIDENTS

A STEEL walk weighing an estimated 1200 pounds was being lowered into position across pipe lines near a pump house when it slipped and the full weight came down on a worker's foot via one of its legs. Any man who can calmly walk away after such an experience must be wearing either a wooden leg or a pair of safety shoes. When the worker was released, it was found that the steel had cut the leather exposing the steel toe of his shoe but there was no physical injury. Since that day more than 2750 pairs of safety shoes were sold to fellow employees.

WITH THIS RING . . .

A MECHANIC, while setting the timing on a car, touched a ring on his little finger to a wire, which instantly shorted. The ring was burned off and his finger severely damaged. It is important that an employee choose between sentiment and safety. Personal ornaments should never be worn on the job.



HOT SPARKS MEAN TROUBLE

A HOT spark from a rubber grinder was drawn in to the exhaust system and ignited rubber dust in a cyclone collector at a local plant. The spark presumably occurred when an employee sharpened a knife on the grinder, though this practice was forbidden. Warned by a waterflow alarm, employees found the fire in the collector being held in check by five sprinklers, and aided by city fire-hose stream and soda acid extinguishers. Ductwork in the building was damaged, screens in the collector were destroyed, and six side panels of the collector were warped.

Employees should be warned repeatedly against using grinders for sharpening tools where the sparks can ignite combustible dusts in ducts. Put signs on the grinder prohibiting such operations.

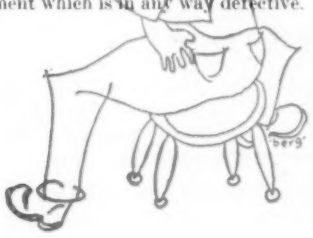
WHERE IS THY STING?

ONE of the hazards of lumbering is the sting of insects and a man employed in such work came up against it in a big way. While working in the timber, he was stung on the neck by a yellow jacket, which injected poison into the blood stream. Unusual swelling of the body, deep shock, and constant care to save his life resulted from this seasonal occurrence. This case demonstrates that to some people insect bites are dangerous rather than just trivial injuries. First aid remedies, whether on the job, or on a week-end outing, may spell the difference between life and death.

HARD WAY

THE SHOCKING TRUTH

PERHAPS you, like many other people, have experienced the startling, tingling sensation which results from a slight electric shock. If you have, it is quite likely that a 110 volt electrical circuit was involved. (110 volts is the voltage employed in ordinary household circuits, as well as in the industrial circuits to which portable electric power tools are generally connected.) There is a widespread but *erroneous* belief that 110 volt circuits are not dangerous. The *truth* is that thousands of people have been killed on 110 volt circuits. Electrical appliances should not be used when hands are wet or when standing upon a wet floor or ground. If appliance must be used under these conditions, the appliance should be connected to ground. There are certain precautions with which all persons who may use industrial 110 volt electrical equipment should be familiar. Portable electric power tools should be properly grounded when in use. If electrical power tool is known or suspected to be defective, the tool should be turned in immediately to the department or person responsible for its repair. Turn in for repair any other electrical equipment which is in any way defective.



IF IT STRIKES TWICE . . .

RECENTLY at a Southern automobile plant, lightning hit and considerably damaged the top portion of the 255′ reinforced concrete power house stack. The reinforcing steel rods in this stack were said to have been bonded together and grounded to the steel frame of the power house. This concern felt the arrangement would provide the necessary protection against lightning, and therefore had not considered favorably recommendations for approved lightning rod installation. Fortunately, the stack damage did not interrupt operations as is often the case. An approved lightning rod installation was provided while stack repairs were being made.

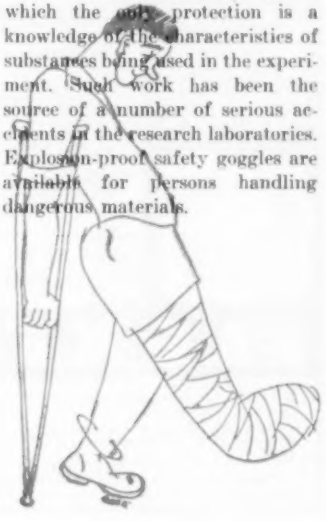
GONE WITH THE WIND

A RECENT fire at a Northern cotton mill was caused by lint being ignited by friction at a card machine bearing. The fire was discovered promptly and an employee controlled it with a dry chemical extinguisher. The damage was negligible, but then an unusual thing happened. The foreman attempted to throw a smouldering lap out of the window, but a strong gust of wind blew burning pieces back into the room where they ignited other laps. Two sprinklers opened and held the fire in check while employees used two small hose streams and several extinguishers. Over five thousand pounds of cotton were destroyed.

SCIENTIFIC HAZARD

SCIENTIFIC research has its dangers. At a laboratory two technicians were packing a metallic powder into a cylinder when the powder exploded. One of the technicians suffered the loss of an eye and the other was severely burned.

In work of this nature, precautions against normal hazards is not sufficient. Experimentation develops hidden dangers against which the only protection is a knowledge of the characteristics of substances being used in the experiment. Such work has been the source of a number of serious accidents in the research laboratories. Explosion-proof safety goggles are available for persons handling dangerous materials.



industrial Hygiene

ASSOCIATE EDITOR
JACOB A. GOLDBERG, A.M., Ph.D.

Accident Clinic

THE fact is generally accepted that approximately 80 per cent of worker-caused accidents are caused by mental or emotional disturbances on the part of the employee injured in industry. At the same time, the cost of setting any kind of program into motion that could clear up these factors, if undertaken by a single firm, is so high as virtually to prohibit such action.

At a recent meeting of the Pittsburgh Society of Safety Engineers, members of the Society heard Dr. Dora F. Capwell, director of Allegheny Vocational Counseling Center, Pittsburgh, incorporate these facts into an address entitled "Modern Approaches to Safety."

Dr. Capwell is head of the district's unique non-profit service center which has tested and interviewed thousands of employees, school students and social agency referrals on job problems and vocational adjustment. She based her talk on the type of help trained personnel psychologists can offer to an average-sized industrial company.

"The conclusion is inescapable that mental and emotional factors account for a large share of our accidents," Dr. Capwell told her audience. "Since those factors vary from one time to another, we would not expect them to be measured with much reliability at the time of employment, or six months to a year after an accident to an employee."

Yet an industrial company which cannot afford to set up elaborate methods to spot accident-prone employees or determine areas in which accidents develop because of emotional or physical disturbance can still go to work on a solution, the speaker noted. A good "accident clinic" is the answer, and it may be administered at reasonable cost by a qualified agency outside a company, to work with safety supervisors, plant physicians and training directors in examining and determining the reasons in back of most worker-caused accidents.

Work of the Clinic

(1) As soon as possible after an accident, the individual employee could be referred to an agency where he would be examined through tests measuring ability, job knowledge, interest and personality.

(2) Since a variety of existing tests can be selected to meet the manufacturing environment of any specific

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industry, the cost of developing such tests within the company and staffing an office to administer them would be eliminated.

(3) At the time of his tests, the employee would also be interviewed, and a clinical evaluation made of his total adjustments, his attitudes toward his job, supervisors, company, and any personal problems—real or fancied—outside the sphere of his job.

(4) Such clinical information, properly evaluated and assembled would point the way toward better selection, training methods and job placement.

Safety engineers and directors heard the Center's director warn that mechanical and physical factors should not be ignored through any overeagerness to find personal and psychological causes of accidents. She acknowledged the immense strides made and still continuing to determine the effect of temperature, variations of care exercised by day and night shift workers, illumination, etc., on accident frequency and severity experience.

The Allegheny Vocational Counseling Center, whose staff of personnel psychologists, research men and statisticians is headed by Dr. Capwell, is best known through Western Pennsylvania for its work with individuals in need of vocational guidance. It has also worked with many of the area's leading manufacturing corporations on special assignment to conduct programs involving the establishment of job-rating scales, interviewer training courses, personnel selection for specialized work or training, executive counseling and the like. The AVCC is now in its fifth year of operation in Pittsburgh.

California Radiation Standards

CALIFORNIA has already established safety standards protecting workers against the hazards of radiation and radioactivity, thus maintaining its position as one of the most progressive states in industrial welfare.

Paul Scharrenberg, Director of Industrial Relations, has disclosed that these standards are included in the recently-adopted *General Industry Safety Orders*, which are now available at the State Printing Division, Sacramento, for the nominal sum of 77 cents, including tax.

The radiation and radioactivity Orders cover a number of things, including supervision and instruction, monitoring, maximum allowable exposure, maintenance of protective devices, and the handling and storage of radioactive materials. They prescribe the type of garments employees must wear, and the inspection of employees at the close of each work period for possible contamination by radioactive material.

With the steadily increasing use of radioactive isotopes in industry, these Orders will be of constantly greater value in preventing occupational injuries.

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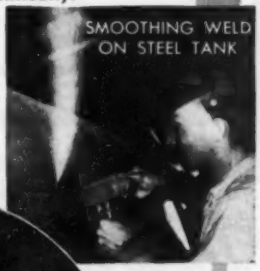

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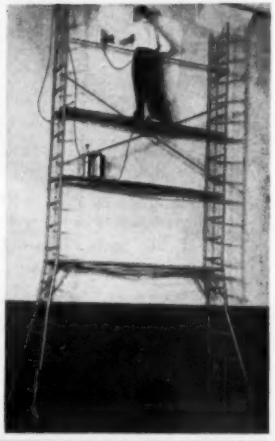

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Static Eliminator Hazards

A RECENT issue of the "Industrial Hygiene Newsletter" warns that in the last few months there has been much concern regarding the safety of radioactive static eliminators which contain polonium as the source of alpha rays. These, as well as another type containing radium, have been installed on printing presses to remove the static charge from the paper as it passes through the machine. They are also used in textile mills and on other machinery where static electricity is generated and is undesirable.

Since polonium emits no beta radiation and practically no gamma radiation, the only health hazard that these devices can create would arise from the ingestion or inhalation of polonium. Polonium is a very dangerous material with a toxicity of about the same order of magnitude as radium.

Essentially these devices contain polonium plated on nickel or other base metal over which is electroplated a layer of gold one to two microns thick. The gold layer is plated on to protect the polonium and to prevent it from escaping from the surface of the bar. Polonium has the ability to migrate, an exceedingly small opening being sufficient to allow it to escape from the surface. It is necessary, therefore, to use great care in manufacturing these devices in order to be sure that all of the polonium is sealed in and cannot be removed by contact or other usual handling.

A defective bar will release polonium-bearing dust into the workroom air and also produce an ingestion hazard when the bar is cleaned. It is necessary to clean the active surfaces periodically to insure proper operation of the devices.

The Division of Industrial Hygiene, USPHS, has conducted a limited investigation of these devices to study the health hazards created by their use. To date, the Division has results on nine static eliminators that have been tested at various laboratories. All of the tests showed that the bars had polonium on both the active and supposedly inert surfaces of the bars and thus were potentially dangerous.

In these tests the polonium could be removed by wiping the bar with a piece of filter paper or cotton so it is certain that any one handling the device would have contaminated his hands with the material. In one case the filter paper showed that about one microcurie of polonium had been removed by this simple test. The accepted maximum daily dosage of polonium is about one-hundredth of this amount.

Laboratories which handle alpha emitters regard any amount of such an element as polonium that is not under control as a hazardous quantity. Therefore, on the basis of present information, all such devices should be viewed with suspicion and their safety should not be assumed until it has been verified by tests.

State industrial hygienists have received informa-

tion on this subject and are prepared to help any one who requests assistance or advice on this subject. Inquiries may be addressed to State health departments (in New York and Massachusetts, address the State Department of Labor) or to the Division of Industrial Hygiene, USPHS, Washington 25, D. C., for further reference.

Summer School To Study Alcoholism in Industry

THE eighth annual session of the Yale Summer School of Alcohol Studies will be held at Yale University from July 8 to August 4, 1950, Dr. Howard W. Haggard, Director of the Yale Laboratory of Applied Physiology, announced recently. This year, Dr. Haggard pointed out, a new emphasis will be placed upon the particular problems of alcoholism in industry, with a special workshop for those engaged in personnel work. During the year, the Section on Alcohol Studies has developed an educational program for industry, since the subject of alcoholism in industry has assumed increasing importance. The Yale program is now in operation in Wisconsin, with the cooperation of the Wisconsin Bureau of Alcoholic Studies.

Before the summer session begins, he added, two further studies will have been completed. They are: 1) the occupational status and history of more than 2,000 patients of alcohol clinics, and 2) the problems encountered by union stewards.

The Summer School of Alcohol Studies is designed to make the most recent findings of scientific research available for application to the problems of alcohol in the community. Its educational program has been arranged to meet the needs of men and women in professions and activities requiring a thorough knowledge of the facts about alcohol problems.

Registration for the summer session will take place on Saturday and Sunday, July 8 and 9, with the first lecture and a reception planned for the evening of July 9. Prof. Elvin M. Jellinek, Research Associate in Applied Physiology at Yale, will direct the school. He will be on leave from the Yale Institute of Alcohol Studies of the Southwest for this purpose.

The first two weeks of the Summer School provide a general background for all enrolled. At the beginning of the third week the student body is divided into two groups for the majority of the lecture periods. The first group includes persons interested in the legal, educational, religious and community problems involved in alcoholism. The second group is composed of physicians, social workers and others concerned with the care and treatment of alcoholics.

During the second half of the summer session the students have the opportunity to attend various workshops dealing with special interests, such as personnel work, education, the ministry, professional therapy, organization and administration of local programs to solve problems of alcoholism, and others.

The entire summer program includes 55 lectures,

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informal group meetings, visits to the laboratory, clinical and other facilities and individual consultations with staff members. In addition, the schedule has been arranged to provide approximately 12 hours each for the student workshops.

Schoolteachers and administrators, physicians, physiologists, welfare workers, probation officers and other persons engaged professionally in activities in which a knowledge of alcohol problems is advantageous are considered qualified for admission. All others desiring to enroll are required to have a college education or equivalent experience. Part and whole scholarships are awarded annually by the Summer School to qualified persons.

All correspondence concerning the Summer School should be addressed to: Summer School of Alcohol Studies, Laboratory of Applied Physiology, Yale University, 52 Hillhouse Ave., New Haven, Conn.

Sterilization for Small Plants

SMALL plant medical departments which cannot meet the cost of an autoclave may accomplish surgical sterilization by means of a pressure cooker heated on an electric plate. This would allow for sterilization of such articles as gauze, applicators, and emergency packs which may not be boiled. This method also would be less injurious to instruments than boiling. Although the use of a pressure cooker in a small plant is an improvement over no sterilization, a properly designed steam-pressure surgical sterilizer would receive first preference.

The pressure cookers are operated the same as for home cooking and according to the instructions coming with the cooker. In the book, *Disinfection and Sterilization,* by Ernest C. McCulloch, the following length of time at 15 to 17 pounds of pressure is recommended for the articles listed:

	Minutes
Dressings in normal size pads in double muslin covers	30
Utensils, nested, in double muslin covers	15
Utensils, single, in double muslin covers	10
Instruments in trays with or without muslin covers	10
Instruments wrapped for storage	15
Rubber gloves in double muslin wrappers, not stacked	15
Solutions (1,000 to 1,500 cc. flasks, thin glass)	15
Solutions (500 cc. flasks, thin glass)	12
Solutions (125 to 250 cc. flasks, thin glass)	8
Solutions (50 cc. flasks, thin glass)	6

McCulloch lists certain materials which cannot be penetrated by moist heat and so cannot be sterilized in this way. They are oils, petrolatum, petrolatum gauze, wax, glycerin, talcum, zinc oxide or, zinc peroxide.

The following precautions should be taken: *(1)* The pressure gauges should be checked frequently, as they are not always accurate. If this is not possible, at least

twice the above time in minutes should be used in order to allow for possible inaccuracies. *(2)* The cooker should not be overpacked. *(3)* Fluids and materials which need to be dry should not be sterilized at the same time. *(4)* Dressings should be removed from the cooker immediately after the pressure is released, so that they will dry more rapidly. *(5)* If jars containing materials are sterilized, the tops should be removed.

New Air Filter

A new inexpensive paper-like filter material designed for filtering fine radioactive particles from contaminated gaseous wastes has been developed for the Atomic Energy Commission by a research and engineering organization. The development may have general commercial or industrial use, for instance in filtering the smokestack gases which now cause fumes or smog.

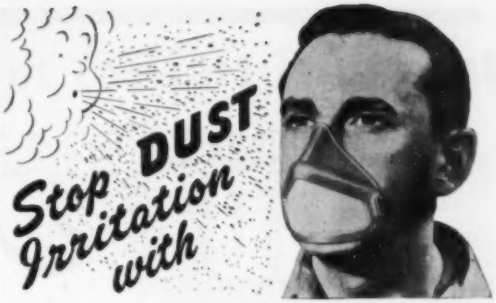
The new material contains treated paper-making fibers in combination with very finely divided mineral asbestos fibers. The material is made in soft, flexible sheets which can be pleated and formed into shapes to fit filtering units of large capacity.

AEC facilities using cooling or ventilating air which might become contaminated with radioactive particles take extreme care to eliminate such particles before the air is discharged into the atmosphere. Air filters developed and used by the Chemical Warfare Service for protection against gas warfare have proved satisfactory, and for some years the Army has been supplying AEC with filter units. With the expansion of the atomic energy program, however, the demand for filters has grown rapidly. In order to develop alternate sources of supply and possibly to reduce filter costs, the AEC initiated a program for filter research and development.

The paper can be made on relatively slow Fourdrinier machines of a type found in a large number of paper mills fabricating soft saturating papers. Thus, the atomic energy program can be assured a diversified source of supply.

It is believed that this filter development may have general use in industrial filtering. One possible use is to filter stack gases now causing fumes or smog in many regions. Such filters may also be used to filter ventilating air in biological laboratories and hospital buildings, especially in operating rooms.

The filter units consist of deep, closely spaced pleats of filter paper fitted into wooden frames. The pleats are spaced and kept in line by deformed separators of ordinary paper which hold them in place and permit easy passage of the air to be filtered. The paper pleats and separators are anchored into wooden frames with plastic adhesives. The frames are in turn glued and screwed at all corner joints to produce a perfectly tight assembly. Gaskets of soft sponge rubber cemented around the edges of the frames prevent air leaks when the frames are clamped into place.



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THE INDUSTRIAL Nurse

EDITOR

ROSAMOND J. WEBSTER, R.N., A.M., Ph.D.

Figures Tell a Story

FIGURES covering tuberculosis death rates—all forms of the disease—tell an interesting story. The final figures for 1948 show a decline of tuberculosis deaths from 33.5 per 100,000 in 1947 to 30.00 in 1948. The total deaths were 48,064 in 1947 and 43,833 in 1948. Tuberculosis remains a major cause of death and disability. The death rates do not tell the whole story. Most people who become afflicted with the disease become disabled at a comparatively early age and so lose many years of productive existence. The same is not true, for instance, with heart disease or cancer, both of which primarily disable men and women in older age groups. Interesting aspects also relate the geographic distribution of the deaths from tuberculosis. In 1948 the rate was 9.5 in Iowa, 10.3 in Utah, 10.5 in Wyoming, 11.9 in Idaho. Some of the industrial states, as might be expected, show considerably higher rates. New York was 36.0, Illinois 31.8, California 31.9, Massachusetts 30.0, Pennsylvania 29.4, New Jersey 29.2, Rhode Island 26.7. A group of the Southern states had the highest rates. They were as follows: Arizona 82.4, New Mexico 53.1, Kentucky 45.2, Alabama 35.2; there are certain racial factors which help to keep rates up. Negroes and Mexicans, as well as Porto Ricans in this country, all have high tuberculosis death rates. The industrial and agricultural areas where these people are found in comparatively large numbers show high total death rates. Industrial exposure also helps to keep rates high. How explain the New Hampshire rate of 13.8 per 100,000, with Vermont showing 31.7 per 100,000? Can it be that stone cutting still takes a high toll in deaths from pulmonary tuberculosis?

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"Nothing"

A GENERATION ago a congressional committee was holding a hearing on ways and means of reducing industrial strife. The committee called the leading labor leader of that day, as one of the witnesses to give evidence. When asked what in his opinion Congress could do insofar as the enactment of legislation was concerned, he responded with one word . . . "Nothing." Subsequent explanation softened the implications of this curt answer, but it was in the spirit of the times that it was broadly interpreted. We have traveled a long way since that time. Differences still exist and undoubtedly will persist for a long time. As a further indication that the response, "Nothing," was part and parcel of a type of thought, it might be

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added that the same labor leader was subsequently approached regarding the promotion of industrial health activities. His answer was that his interest lay in two areas only, more pay and fewer hours of work. But again, we have gone a long way. Industrial hygiene has taken a strong hold in industry. Medical departments have long proved their worth to management and to labor. There is, however, an inherent challenge that will always be present. That pertains to the necessity of bridging the area of misunderstanding through such personal services as the industrial nurse and her associates can bring about. She is the employer's representative, even though an employee herself. Through her daily contacts with injured or ailing workers much can be accomplished. The sick are more readily subject to emotional disturbance. They need sympathetic and effective service. The concept of "Nothing" should become foreign to their thoughts insofar as the medical department is concerned.

Who's Next?

A WELL-KNOWN sports writer looks upon the American scene and finds much to praise. He is particularly intrigued by the freedom, the fairness, the give-and-take evident in our sports and recreational activities. In a way, he summarizes some of his thoughts by emphasizing the appeal evident in the well-known question "Who's next?" A carry-over of this concept into industrial relations is explicit in the operation and activities of industrial medical departments. As is readily recognized the bedside manner of a physician and the ministrations of a nurse are almost as important as the therapy prescribed and applied. Sometimes the human touch is of greater significance. So, too, the daily routine of the medical department is enhanced by the "Who's next" question, and what follows thereafter. In some plants the formalism, the coldness, the super-professional attitude of the industrial nurse does not bring a breath of warmth and human concern for the injured or ailing worker who responds to the query. He rises, takes his expected place in the treatment area, and then takes his leave. In others, the question has a personal approach and appeal, and inspires a readiness and willingness not only to follow through with the offered treatment, but to welcome and faithfully follow instruction given by the medical department personnel. "Who's next" may mean much in the long run.

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be a hazard not only to themselves but to fellow workers as well. The unfortunate thing is that often those with defective hearing, particularly if they have not been tested or the defect is not severe, are unaware of their physical handicap. Wearing of hearing devices is becoming more common, but this is largely true among so-called "white collar" workers. Factory and heavy industry workers, among whom accident rates are much higher, usually avoid the use of such devices for various reasons, even if they are fully aware of their shortcoming. An extensive research project covering several hundred cases of deafness of all types and degrees has demonstrated a wide range of bodily diseases and disfunctions from which deafness, tinnitus and vertigo originate. Biochemical examinations of the blood of the hard-of-hearing or the deaf in the vast majority of cases have revealed specific abnormalities. Methods of therapy to control these blood conditions are being worked out. They relate primarily to devising means of bringing about more effective carbohydrate metabolism, which in turn aids fat metabolism and brings about a reversal of factors which cause certain types of deafness. Current indications call for the examination of all workers in hazardous industries and their referral to properly qualified medical specialists when hearing defects are discovered to be present.

Current Date On Health Insurance

SEVERAL bills now before Congress under which care could be provided to relief and low income groups are of particular importance. The prineiple of compulsory contributions based on income is incorporated in a bill (S.1679) which would make available physicians' care in the office, home, and hospital, and hospitalization for about 85 percent of the population. This bill would permit the state agency to utilize voluntary insurance plans in providing personal health services. Four bills are based on federal subsidies from general revenues, one (S.1456) would require and one (S.1581) would permit the use of voluntary prepayment organizations in providing services to the neediest portions of the population; another (S.1970) would subsidize voluntary plans to make their services more generally available at charges based on income of subscribers; while a fourth (S.1805) would assist cooperative and other non-profit medical and hospital care plans in the acquisition, construction and equipment of needed facilities. Each bill would make federal funds available to pay part of the costs incurred. Assistance of this type would give the federal government a voice in making rules and regulations to insure that public funds are being properly expended. The introduction of these bills, as well as of several others that have been introduced in the House of Representatives, indicate current thinking among some congressional leaders, as well as others. What will come of this is still a matter for conjecture.

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The Morse Blaze Finders are available for automatic operation on both the rate-of-rise and fixed temperature principles, and in the larger systems have, in addition to audible alarms, locator panels which indicate the location of the fire. They may also have auxiliary battery power in case the electric circuit fails. All models include a supervisory light panel which indicates any trouble in the alarm circuit. The system can be manually tested at any time. Component parts of the Blaze Finder are approved by Underwriters' Laboratories. For complete information, send in the coupon.

SPLIT WASHERS

IS BEARING trouble causing your repair bill and "down-time" to go sky-high? If it is . . . you probably haven't heard about "Sabeco" split washers!

Manufactured by the Saginaw Bearing Co., of Michigan, the patented "Sabeco" split washers are designed to facilitate repair . . . you don't have to dismantle your machine to install new bearings, simply slip "Sabeco" split washers over the shaft and lock with the safety key . . . thus, the new split washers make possible quick, on-the-spot repair and more economical operation . . . especially for heavy construction, plant machinery oil field equipment, power house and other large electrical installations, lift trucks, etc.

The Saginaw Bearing Co. will supply "Sabeco" split washers in any practicable size—made-to-order to your specification. For details, use the coupon.

SIGHT SAVER DISPENSER

YOU may be one of the many people who depend upon Sight Savers to keep glasses clean. The Dow Corning Corp. of Michigan has developed a Sight Saver tissue dispenser for factory and office use. The tissues contribute to safety and improve morale by providing employees with a quick easy way to keep their eyeglasses and goggles clean.

The attractive new metal wall dispenser holds a month's supply of 3" x 7" tissues. The container is available in either black or white. The Sight Saver tissues are impregnated with a special silicone that gives added clarity and luster to glass, and also forms an invisible coating to protect the surface and prevent the adherence of most organic materials. No cleaning fluid is required.

The only servicing involved is the simple insertion of a refill pack of tissues. With this unit, less time is needed for keeping glasses clean. For complete details, send in the coupon.

ONE-MAN HOIST

THE Safway "Bosun's Chair," developed by the Safway Steel Products, Inc. of Wisconsin, consists of a rigid tubular steel cage which is moved by means of an efficient winch. Sitting on a comfortable bicycle-type saddle, the worker operates standard bicycle pedals to raise or lower the hoist. He can also work from a standing position.

A roller chain transmits the pedal power to a winch which is U.L.-approved. The hoist can be moved as fast as 25 ft. per minute under the complete control of the operator, whose hands are always free for other duties. The hoist has a rated capacity of 625 lbs. and is furnished with 150 ft. of ¼" steel wire rope. The unit weighs 75 lbs. and can be handled by one man. Hard rubber rollers prevent marring of working surfaces.

Safety features include a mechanical brake in the crankshaft which acts whenever the pedal rotation stops, a pawl on the drum ratchet which must be disengaged manually before descending, and an automatic stop on the crankshaft in the lowering direction. The Safway "Bosun's Chair" permits fast, convenient and safe one-man maintenance work on stack painting and repair, internal stack inspection, work on tanks, bridges, ships, quarries, downspouts, standpipes and other vertical surfaces. For complete details, use the coupon.

INDUSTRIAL BOOTS

TO PROVIDE safe footing for those who work on wet or dry surfaces, the Sperry Top-Sider Footwear Co. of Connecticut has announced its 1950 line of three waterproof footwear styles. At the front of the picture is a new high-cut rubber for wear over leather shoes. In the center is a new lightweight boot for wear over socks. It is made in two heights, one just below the knee and one to the middle of the thigh. At the back left is the all-rubber Pilot Boot for wear over leather shoes and is also made in two heights.

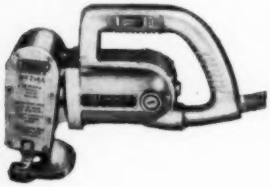
All three styles have a special non-skid sole which instantly grips, giving sure footing. For complete details, send in the coupon.

ELECTRIC SHEAR

STANLEY ELECTRIC TOOLS of Connecticut announces a new Unishear, No. 214A. This light-weight, streamlined portable electric shear cuts up to 14 gauge hot rolled steel (other materials in proportion) at a speed of 15 to 20 feet per minute.

The simple, improved blade motion "feeds in" the work so that little effort is required by operator in cutting straight lines, curves, angles and notches with hair line accuracy. Improved method of blade adjustment permits easy and quick setting of blades.

Universal motor is full ball and roller bearing construction. Yoke is made of special head treated alloy steel, minimum number of moving parts, motor operates on either DC or AC, 60 cycles or less. Voltages 115, 220, 230 or 250. Minimum radius of $\frac{1}{2}$" left hand and $1\frac{1}{4}$" right hand. Net weight $9\frac{1}{2}$ lbs. For details, send in the coupon.



JEEP FIRE TRUCK

A LOW cost jeep fire truck with a big fire-killing punch has been developed by Ansul Chemical Co., to carry 340 lb. of dry chemical. It is capable of extinguishing large area flammable liquid, gas and electrical fires. Named the Ansul Model 340-J, the jeep fire truck will be available to manufacturing and chemical plants, the petroleum industry, airports, electric and gas utilities and other installations where fire hazards are dispersed over wide areas.

This pocket-size fire truck is also designed to aid building contractors, municipal fire chiefs, even forest rangers. Fire fighting power, speed and maneuverability indicate a great range of uses.

A 300 lb. tank of dry chemical is provided for combating large fires. On the

Model 340-J2, two 50 ft. hose lines to be operated together or singly are attached to the dry chemical tank. Steel hose cabinets are provided for protection against weather. Two Ansul 20 Extinguishers mounted on the hood are available for small fires. The Model 340-J1 features one hose line.

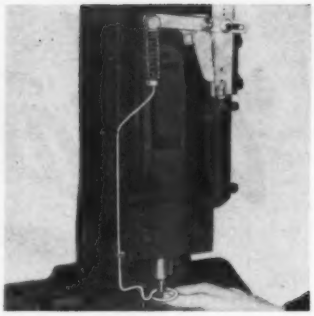
There are seats for the driver and a passenger, but two more men may be squeezed in if desired. The Ansul Model 340-J is an effective fire fighting unit with one, two, three or four men.

Despite the large amount of dry chemical, the jeep fire truck's curb weight is 3200 lb., well within the manufacturer's gross weight limit. Additional fire fighting or rescue equipment may be added. The dry chemical equipment is mounted on a standard Universal Jeep (four wheel drive) Model CJ-3A. The vehicle has six speeds forward, two in reverse. Top speed is 60 miles an hour.

All controls for operating the fire equipment may be worked from the driver's seat. The dry chemical tank may be pressurized on the way to the fire. For full details, use the coupon.

KICK-PRESS GUARD

A NEW "Sentry" guard for foot-powered presses has recently been developed by the White Corp. of Wisconsin. Unguarded kick presses are frequently the source of serious finger injuries. The "Sentry" guard is easily installed, operates automatically without slowing production, and assures complete safety. A finger or other obstruction under the



trigger ring instantly locks the ram to prevent completion of the stroke.

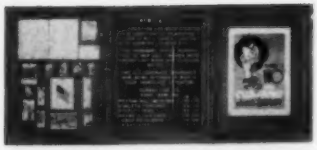
The guard is applicable to most kick presses of open face ram construction. It will accommodate a maximum stroke of $2\frac{1}{2}$ inches, and is designed for a maximum capacity of 2 tons. For further details, send in the coupon.

NON-WASTE SOAP DISPENSER

THE Sugar Beet Products Company of Michigan, makers of the well known skin cleanser, Formula SBS-11, has gained another mark of recognition with their Type R soap dispenser. Main features of the dispenser include economical "circle dispersing" which helps prevent waste and spreads the soap thinly so that it goes into solution faster for quick, thorough cleansing.

The feed mechanism has a 5-way adjustment easily set to discharge the desired amount of soap. A drip shield and anti-water seal deflects water from wet hands away from the discharge opening to eliminate any possible clogging of the dispenser. A tamper-proof screen prevents removal of soap from the top of the unit. The Type R can be completely serviced without removal from the mounting.

The Sugar Beet Products Co. feels it has been able to combine all the best features of soap dispensers into one complete, attractive unit. The acceptance of the Type R dispenser to date indicates clearly that it has proved its worth as a practical efficient unit. For full details, send in the coupon.

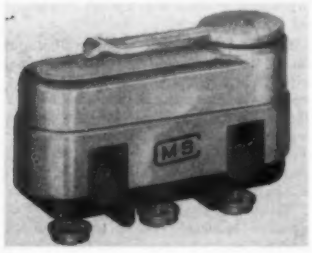


COMBINATION BULLETIN BOARD

A NEW DAV-SON three panel bulletin board provides an attractive posting area both for management notices and employee activity messages. It is made by A. C. Davenport & Son, Inc. of Illinois. The board consists of three cork backed panels in a hardwood frame, with each panel separately enclosed by a locking glass door. The cork surfaces provide an ideal area for pinning up letters, photos, safety posters, etc.

A special feature of the Combination Board is a removable changeable letter panel which slips into any of the three positions. This panel consists of a grooved wood background, covered with black wool felt, and trimmed with metal edges. Professional looking messages can easily be set up on this panel with the white plastic letters and figures provided with the board.

For complete details, use the convenient coupon.



HAZARDOUS LOCATION SWITCH

MICRO SWITCH announces a small size hermetically sealed snap-action switch No. 1HS1, whose electrical or mechanical operation is unaffected by corrosive atmospheres, change in atmospheric pressure, or change in temperature. This switch is designed for applications involving wide variance of temperature, extremes in air pressure, and hazardous atmospheres. Its sealed vapor-proof character lends itself to industrial use in locations where atmosphere or splash of liquids make other switches unsuitable. These switches may even be operated under oil and other fluids.

The sealed case, or upper part of the switch, is metal and filled with inert gas, under pressure. This sealed metal case is secured to a plastic mounting base to which are assembled rugged No. 6 screw terminals, so arranged as to avoid strain on the glass beads which seal the conductors into the metal case.

Its size, design, and mounting holes, are such that this switch is interchangeable with MICRO Type Z "Pin" plunger basic switches, and can be used in all actuators and housings made for MICRO "Pin" plunger switches. For complete details, use the coupon.

3 NEW BAND-AIDS

THREE new adhesive and elastic first aid dressings of the Band-Aid type, packaged for the Davis D-Carton Unit Dressing System of First Aid, have been announced by the Davis Emergency Equipment Co. Inc. of New Jersey.

The new dressings, produced for Davis by Johnson & Johnson are in three different shapes and sizes which provide an appropriate dressing for every first aid need. "Spot Dressings" are circular with a diameter of ¾"; "Patch Dressings" are 1½" square; and there are rectangular "Elastic Adhesive Bandages," 1" x 3".

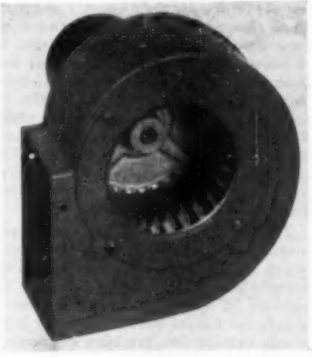
All are elastic, waterproof, sterile, and flesh colored. Individually wrapped, each dressing has a vent hole for aeration. A special occlusive feature assures complete and effective seal around all edges of the gauze pad. This is especially valuable for men wearing gloves.

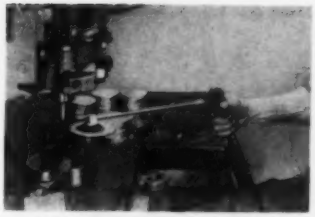
Among the uses for which the dressings are designed are face lacerations, head and scalp wounds, puncture wounds, finger and hand wounds. The Spot and Patch Dressings are available in units of 8 each, and the Elastic Adhesive Bandages in units of 16. For details use the convenient coupon.

AIR BLOWER

A NEW low-priced volume air blower for ventilation, coal and coke fires, light dust removal, and other air moving applications has been developed by the Standard Electric Mfg. Co. of New Jersey. The blower is now made with a steel housing and with squirrel cage blower wheels. It utilizes a 110-volt, 60-cycle, A.C. motor, running at 1725 RPM.

Available in two sizes, model #475BL is 4¾" with 260 cubic feet per minute, and model #600BL is 6" with 600 cubic feet per minute. For complete details, please send in the convenient coupon.

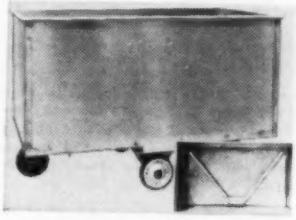




VACUUM FEEDER

THE F. J. Littell Machine Co. of Illinois has been field testing its Pres-Vac Safety Feeder in some of the larger stamping companies with remarkable success. This device permits power press operators to place small parts in position without putting their hands into the danger area under the ram.

The feeder grips the blanks by suction. A vacuum is produced in the suction cup by means of compressed air. The action is controlled by the trigger on the pistol-grip handle. For complete details on this device for reducing hand injuries and their accompanying costs, send in the convenient coupon.



DYE TRUCK FOR DRY FEET

ANSWER to many workers' prayers is a new design of dye house truck developed by KIF Industrial Fabricators of Connecticut. Created to fill the industry's greatest need as indicated by a study of dye house operations, it incorporates patented construction features which "keep workers' feet dry."

Unique drainage funnels the washing and dyeing liquids through a central outlet, away from workers' feet. The patented drainage prevents damage to cloth that occurs in perforated bottom trucks which drench workers' feet. There are no perforations to suck wet fabrics through and tear them. This damaging action is offset by KIF's unique channel-protector.

Stainless steel sides have replaced conventional slatted sides through which liquids spill and soak workers' legs and feet. KIF's solid sides also prevent cloth from being frayed.

The KIF Dye House Truck is made in sizes to suit a variety of washing, dyeing and liquid-handling operations. Equipped with heavy duty roller bearing wheels and casters, the trucks roll easily and afford rugged duty. For details, use the coupon.

LIGHT STEP LADDERS

A NEW addition to the line of aluminum ladder equipment being offered by the Louisville Metal Products Co., Inc. of Kentucky is the fully riveted aluminum step ladder constructed from .064" aluminum alloy. It is available in standard sizes of 4, 6, 8, 10, and 12 feet. The pail shelf is included on all sizes except the 4-foot model.

A distinctive safety feature are the heavy ridges on the steps for non-skid footing. Hardware, including external braces, is made of heavy gauge cadmium steel for greater strength at the stress points. Thick fibre insulating blocks on all floor contact points prevent marring of surfaces.

These ladders are designed for heavy service where light weight, one-man equipment is essential, and are a supplement to the company's full line of ladders, planks and stages. For details, use the coupon.

WELDERS GAS MASK

TO PROTECT welders on jobs where there are hazardous gases or smokes due to product residue or vaporization, Acme Protection Equipment Company of Illinois has developed a special full vision gas mask, to be known as Pur-a-weld, that can be used interchangeably with dust and fume canisters or a compressed-air supply unit.

Advantages of this new type equipment, it is stated, include greater vision than ever before available in welding helmets; lenses in shades from 4 to 12; complete

gas mask protection to reduce headaches, fatigue and other health hazards; easy fit and comfort; free-breathing; replaceable welding hood; interchangeable air supply to meet different conditions. The complete outfit is furnished in a compact carrying case.

Complete information can be obtained by sending in the coupon.

FOOT PEDAL FLUSH

THE new EASY FLUSH PEDAL, which converts a hand operated flushing action on toilets to a sanitary foot pedal flush, has recently been endorsed, after extensive testing, by leading organizations throughout the country. Field tests have shown, because of convenience in ease of operation and sanitary aspect, it eliminates unflushed toilets—a must for promoting cleanliness and good will. Sticking valve problem, which results in wasting water, is also overcome, while flush valve maintenance is reduced. Management and employee comment is highly favorable. It has been accepted, nationally, by the largest industrial plants, office buildings and institutions.

This modern unit is designed to accommodate all flushometer and tank type water closets on both new and existing installations. No plumbing changes or shutting off water supply required for a simple ten minute installation. Item is of sturdy construction, precision engineered,

finished in polished chromium plating on heavy gauge brass.

This practical unit, recently awarded the Seal of Merit by America's greatest architects, is the only attachable foot pedal on the market and is manufactured by APPROVED PRODUCTS CO. For full details, use the coupon.

STA-PUT LADDER SHOES

THE "STA-PUT" Ladder Shoe and Ladder Top Grip are a new development of E. C. Forsythe & Co. as an answer to the need for a low priced ladder shoe and one which could also be placed at the top to prevent side slipping. The shoe is easily attached by merely stretching the strong rubber strap and slipping the shoe over the end of the rail. Tension holds the shoe in place, but if the ladder is damaged beyond repair, the shoe can be slipped off without the trouble of removing bolts or screws.

The STA-PUT shoe is made of strong corded rubber (neoprene also available) with Behr-Manning "FOOTHOLD" cemented in place as an abrasive to prevent slipping. The shoe will not slip on concrete, wood, tile, composition or other types of floors, even though the ladder is placed in a pool of water, ice, oil, grease or similar slippery materials.

This safety device can be adjusted to all sizes of ladders. The abrasive is hard, long-wearing, and water- and oil-resistant. The shoe gives dependable service and is priced so low as to make it expendable. For details, use the convenient coupon.

May, 1950

To SAFETY ENGINEERING

75 Fulton St., New York 7, N. Y.

For prices and complete details of items mentioned in this month's "What's New in Safety Products," check items that interest you and mail coupon.

- ☐ Blaze Finder
- ☐ Split Washers
- ☐ Sight Saver Dispenser
- ☐ One-Man Hoist
- ☐ Industrial Boots
- ☐ Electric Shear
- ☐ Jeep Fire Truck
- ☐ Kick-Press Guard
- ☐ Soap Dispenser
- ☐ Bulletin Board
- ☐ Hazardous Location Switch
- ☐ New Band-Aids
- ☐ Air Blower
- ☐ Vacuum Feeder
- ☐ Dye Truck
- ☐ Light Step Ladder
- ☐ Welders Gas Mask
- ☐ Food Pedal Flush
- ☐ Ladder Shoes

Firm Name .....

Attention of .....

Position .....

Firm Address .....

City .....

free bulletins and catalogs · free bulletins and catalogs · bulletins and catalogs

New publications of manufacturers are offered by SAFETY ENGINEERING Reader Service Department as a convenience to executives. Featured catalogs, data sheets and technical bulletins present the latest information on protective products and equipment.

EDUCATIONAL AIDS

Accident Prevention Signs 1

Stonehouse Signs, Inc. A valuable 4-page folder illustrated in full color and showing typical signs to be used in factories and offices to prevent accidents. Included are "Danger," "Caution," "Notice" and similar general accident prevention warnings. The folder gives full specifications on the sizes and prices of these enameled steel signs. Colors and designs follow the ASA code.

LIGHTING EQUIPMENT

Fluorescent Lamp Guards 2

Dan-El Equipment Co. This bulletin exposes the danger of falling fluorescent lamps, including the possibility of injury, poisoning, loss of time, food contamination, material spoilage, and damage to machinery. The bulletin shows four models of lamp guards which hold fluorescent tubes securely in place, and describes how free samples may be obtained.

BUILDING MAINTENANCE

Industrial Vacuum Cleaner 3

U. S. Hoffman Machinery Corp. A 4-page illustrated bulletin describes the Hoffco-Vac No. 30, a heavy-duty portable industrial vacuum-cleaning unit. The No. 30 offers the unique advantages of the larger units in this new smaller 3 H.P. type. It provides non-stop cleaning on heavy dust deposits, easy maneuverability in narrow spaces, a dust container designed for efficient disposal. The bulletin gives full details of construction, specifications and operating capacity.

Abrasive Plastic Floor Coating 4

The Flintkote Co. A new 4-page folder and sample of "FLINTDEK," a synthetic plastic coating containing a mineral type of water-resistant aggregate. Applied by trowel or spray gun to wood, metal or concrete surfaces, the abrasive coating has excellent non-slip qualities. The folder, in addition to the sample, illustrates the five colors in which FLINTDEK is available.

Roof Cooling 5

Ruppright's Rotary Roof Cooler. This 4-page folder discusses various methods of keeping roofs cool and shows the advantages of the Rotary Roof Cooler. In this device, the cooling effect is produced by a thin film of water that is continuously renewed by the slowly rotating cooler as the old evaporates. No thermostats or electric connections are required.

FIRE PROTECTION

Hand Dry Chemical Extinguisher 6

Safety First Co. This 4-page illustrated folder introduces the new and revolutionary line of Safe-T-Meter hand portable dry chemical fire extinguishers, which have been approved by Underwriters' Laboratories. These are small 2½ and 4 lb. models, suitable for flammable liquid and electrical fires in the home, farm, vehicles and emergency protection in the factory. The new design permits quick, easy operation, and the discharge can be stopped at any time. A gauge indicates the need for a refill.

Fire Appliances 7

George W. Diener Mfg. Co. A 10-page illustrated catalog describes this company's line of fire fighting and fire control equipment. Included are safety cans for volatile and explosive liquids, oily waste cans, excelsior cans, dip tanks with fusible links, all types of hand and wheeled extinguishers, fire pails, and also a pneumatic acid syphon. The catalog also gives current prices for the various items.

Periodic Inspection Chart 8

Ansul Chemical Co. Fire extinguishers are emergency equipment. They should always be in perfect working order. The Ansul Chemical Co. has designed a periodic inspection chart that is available free to help fire inspectors keep accurate records of their extinguishers. This unusual chart has space for 26 inspections of up to 38 extinguishers.

SKIN PROTECTION

The Glove Invisible 9

The Boon Company. A boon to workers in harmful chemicals is "Boon," an antiseptic film protective cream described in a 4-page folder. It guards the skin against dermatitis from such materials as grease, paint, poisonous plants, oils, varnish, gasoline, naphtha-cutting oils and many other harmful materials. The cream can be easily removed with soap and water. It promotes the healing of cuts and sores. Available in tubes and various sizes of jars.

Medicated Soap 10

Huntington Laboratories, Inc. Two interesting pamphlets give valuable background information on the use of a medicated soap, Germa-Medica with hexchlorophene (G-11). This is a liquid soap designed for surgical use, but the recent introduction of a similarly medicated powder soap for industrial use should make these pamphlets of great interest to all concerned with hygiene. One of the pamphlets is a comprehensive annotated bibliography on the soap, and the other gives the results of tests made with this germicidal cleanser.

WASHROOM SANITATION

Women's Toilet Fixture 11

American Radiator & Standard Sanitary Corp. A 6-page illustrated folder describes the Sanistand, a new urinal fixture designed for women's public rest rooms. The fixture has no seat and therefore should be installed along with ordinary water closets. It is designed to prevent the spread of germs and improve the sanitary condition of women's rest rooms. It has been thoroughly field tested and has met with approval of users.

FIRST AID

Resuscitators 12

J. H. Emerson Co. This 4-page reprint from SAFETY ENGINEERING tells you what to do in an asphyxial emergency, describes the advantages of resuscitators, and gives the pros and cons of various manual methods. In addition, there are excellent photographs of the Emerson resuscitators, both hospital and portable types.

Hydra-Lizer for Ladders 13

Cleveland Impact Recorder, Inc. This 4-page bulletin describes and illustrates a startling new device which makes it possible for those in charge of shipping and materials handling to find out exactly where goods have been damaged in shipment. The device, when placed in a carton or crate records the time and intensity of impact or drop in three directions: up and down, forward and back, or sideways. The recording tape is sufficient for a 28-day trip. Shipping delays can also be traced, since no record of movement will appear during those times.

Safety Ladders 14

The Dayton Safety Ladder Co. This 4-page bulletin describes the unusual safety features of this company's platform step ladders. These spruce ladders have an ample working platform for one or two men, with side rails around the platform to prevent falls. Steel shoulder rods and trusses eliminate wabbling and swaying of the ladder. Each step is supported by a steel truss rod to prevent loosening, turning or breaking. Excellent pictures show typical uses, and a chart gives full specifications and prices for sizes ranging from 3 to 16 feet.

SAFETY TOOLS & DEVICES

Wired Television 15

Diamond Power Specialty Corp. An unusually interesting pamphlet is this 17-page bulletin showing applications of "Utiliscope" wired television. This equipment permits the remote observation of devices or conditions too dangerous or inaccessible to view directly. Of interest to safety engineers are uses of the wired television in destructive and explosive tests, pouring of molten metal, watching for pile-up of material in coal tipples and other conveyors, burglary protection, viewing conditions after a mine disaster, viewing nuclear research operations, protecting boilers against low water level, viewing tunnel traffic, etc.

POWER PRESS GUARDS

Safety Lifting Clamps 16

Safety First Supply Co. This 4-page illustrated bulletin describes Never-Slip Safety Clamps for lifting plates, sheets, shapes and sections in steel mills, shipyards, warehouse, fabricating shops, etc. A valuable chart of sizes gives the jaw capacity, working load and weight for both the horizontal and vertical types. Also illustrated are barrel and coils-of-strip lifters.

LADDER SAFETY

Shipping Damage Detector 17

Anderson Products Co. A 4-page bulletin describes and illustrates the construction and use of the automatic ladder-leg equalizer. Designed to provide safe footing for ladders on stairs, ramps and other slanting or uneven surfaces, the Hydra-Lizer automatically conforms to the irregularities and locks in place. It can also be used safely on icy, slippery or soft ground conditions.

WRITE NUMBERS CORRESPONDING TO THE ITEMS HERE ☞

Your Company Name _____
(Please Print)

_____

Street _____

City & State _____

Your Name _____

Your Title _____

Return This Coupon To:

SAFETY ENGINEERING
75 Fulton Street
New York 7, N. Y.

May, 1950

PROTECTION PROBLEM?

MODEL R-45—Natural rubber, palm coated, standard weight, knit wrist, curved finger, with nonskid finish for use in general utility work.

HOOD

Gloves will fit any job *better!*

MODEL R-46—Natural rubber, fully coated, standard weight, knit wrist, curved finger, liquid proof, nonskid finish for utility work.

Many and varied are the dangers to which employees' vital hands are exposed in industry today. And many and varied are the brands and types of gloves available for their protection. To be *sure* you are providing the best protection possible, you owe it to your workers *and* your business to see the Hood line first!

Shown here are two of the many types of Hood gloves available . . . gloves that have resulted from the combined efforts of experienced chemists, engineers and technicians, using the most modern equipment and techniques to give Hood a reputation for reliability *second to none!*

Let this reputation be your guide for solving *your* protection problem *better!* Write for catalog today showing the Hood line of Neoprene, Rubber or Plastic coated gloves for *every* job in *all* industries!

HOOD for NEW Safety PLUS

HOOD RUBBER CO. Watertown, Mass.

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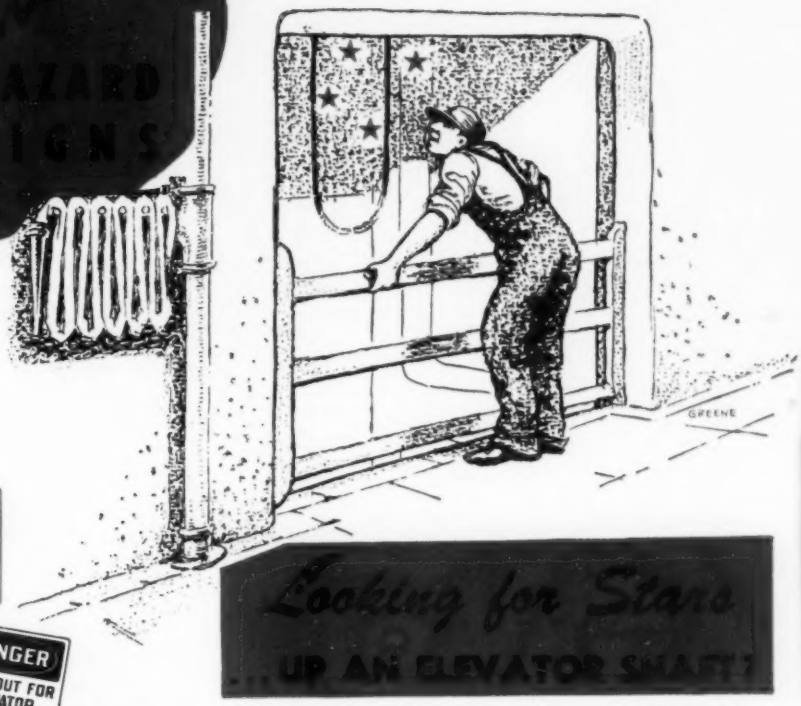

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CAUTION
BE SURE ELEVATOR IS LOCKED WHEN LOADING AND UNLOADING
DANGER
LOOK OUT FOR ELEVATOR
ELEVATOR
NOTICE
ELEVATOR — OUT — OF ORDER
NOTICE
THIS ELEVATOR IS FOR FREIGHT ONLY NOT FOR PASSENGERS
CAUTION
GATE MUST BE DOWN — WHEN — ELEVATOR IS UP
DANGER
DO NOT LEAN ON OR LOOK OVER THIS GATE
CAUTION
RING BELL BEFORE LOWERING ELEVATOR
DANGER
DO NOT RAISE ELEVATOR DOOR RING BELL AND WAIT

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